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Clark University Bulletin

WORCESTER, MASSACHUSETTS 01610

General Catalog 1965/66

Additional Information

Persons interested in other information about Clark University should address the appropriate officer of administration listed below:

General University Affairs:	Dr. Howard B. Jefferson President
General College Affairs:	Dr. Robert F. Campbell Dean of the College
Admission to the College:	Mr. Ronald D. Potier Director of Admissions
Financial Aid:	Mr. Richard W. Pierson Financial Aid Officer
Graduate School Affairs:	Dr. Dwight E. Lee Dean of the Graduate School
Evening College Affairs:	Mr. Thomas J. Dolphin Director
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Clark University reserves the right to amend any administrative policy described in this Catalog without prior notice to persons who might thereby be affected. Information about expenses and fees, and other charges applies to the academic year, 1965-66.

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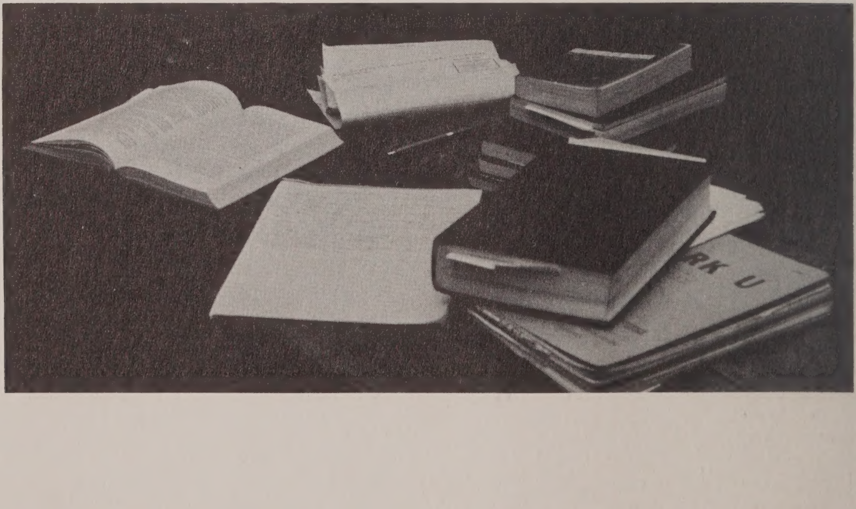
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THE UNIVERSITY

General Information

Corporate Name:	Trustees of Clark University
President:	Dr. Howard B. Jefferson
Incorporation:	1887
Function:	Independent university of liberal arts and business administration for men and women
Degrees Conferred:	Bachelor of Arts Bachelor of Science in Business Administration Bachelor of Science in General Studies Master of Arts Master of Arts in Education Master of Business Administration Doctor of Education Doctor of Philosophy
Enrollment:	1241
Faculty:	95
Endowment, December 31, 1964:	Book Value: $8,458,377.00 Market Value: $13,285,388.00
Library:	260,000 volumes 50,000 maps and charts

Clark
University

The University Today

Clark University is a small urban, independent, co-educational university of liberal arts and business administration, founded in 1887. With a current enrollment of 990 undergraduates—590 men and 400 women—and 235 graduate students, the University is situated on a compact 35-acre campus in a residential section of Worcester, the third largest New England urban center.

The University's activities include undergraduate programs leading to the bachelor's degree in the arts and sciences, graduate study to and beyond the doctorate, and university-level educational programs for adults. These activities are carried on by four divisions: The College, The Graduate School, The Evening College and The Summer School.

As an institution, Clark is committed to scholarly excellence and intellectual creativity, faith in the ideals of liberal undergraduate education, a concern for graduate education and the values inherent in the small university. These beliefs underlie everything the University is or does, and in combination are the essentials which give Clark a unique position among the more than 2,000 colleges and universities in America.

In practice, the fact that the University has by design remained small in numbers in an age of giant universities has enabled Clark to offer its students a rare educational experience. Through a close association and partnership between the College and the Graduate School, the University effectively combines the best features of the small liberal arts college with the scholarly research and advanced programs of the University, to the advantage of both levels. As a result, the Clark undergraduate learns in the university atmosphere of inquiry, intellectual liveliness and vitality. Moreover, the student usually has senior scholars and faculty members for his instructors, most of whom are actively engaged in research.

This exposure is enhanced further by the close personal relationships maintained at Clark between and among faculty, undergraduates and graduate students, made possible by a low faculty to student ratio of one to fourteen, and by a small enrollment in the Graduate School.

Clark College seeks to provide its students with essential knowledge and understanding through concentration in one of twenty fields of study and the selection of a variety of courses in related or other disciplines. In the Graduate School, the Master's degree is offered in thirteen areas, and doctoral programs are available in nine fields. Today a student can receive instruction leading to the Doctor of Philosophy degree in biology, chemistry, chemical physics, economics, geography, history, international relations, mathematics, and psychology. A

Dr. Howard B. Jefferson
President

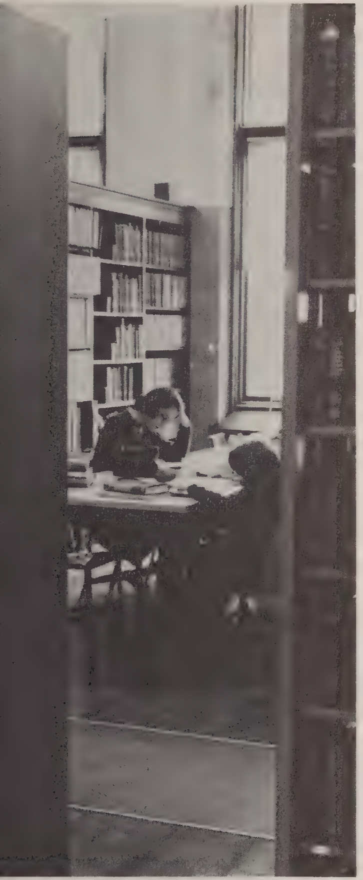
Doctor of Education degree also is offered. Master's degrees can be obtained in these fields and also in business administration, government, physics and sociology. The undergraduate may take courses in these fields, and, in addition, in classics, comparative literature, English, fine arts, German, linguistics, music, philosophy, Romance languages, and Russian.

For the superior undergraduate, there are many opportunities to observe and even participate in research. Some departments have regular programs through which outstanding undergraduates take advanced courses and participate actively in the research of the department.

For all undergraduates, a required three-week period of January independent studies is given to stimulate students to accept greater responsibility for their own education, a practice which is expected of the Clark student. The program provides students with increased opportunities to develop maximum intellectual inquiry, both in their specialized discipline and in related and other fields, through a variety of projects which the student is expected to pursue largely on his own with faculty guidance.

The University's insistence on high academic achievement, together with its unique interrelationships between the undergraduate and graduate program, accounts in large measure for the fact that over fifty per cent of the graduates of Clark College continue their education at graduate or professional schools. It accounts, too, for the fact that a large number of Clark's graduates have earned Woodrow Wilson Fellowships, Fulbright grants and other national awards for graduate study.

Most important, it is a significant reflection on the scholarly teaching and productive research of the Clark faculty. Over eighty per cent of its members hold the Ph.D. degree, a ratio which is among the highest in the nation. In the past five years, the faculty has published nearly 300 scholarly articles and has written a number of books.



In addition to its superior academic programs, Clark University offers its students abundant opportunities for rewarding experiences in broad programs of co-curricular and athletic activities—both organized and informal—as well as in cultural activities of high quality both at the campus and within the Worcester community.

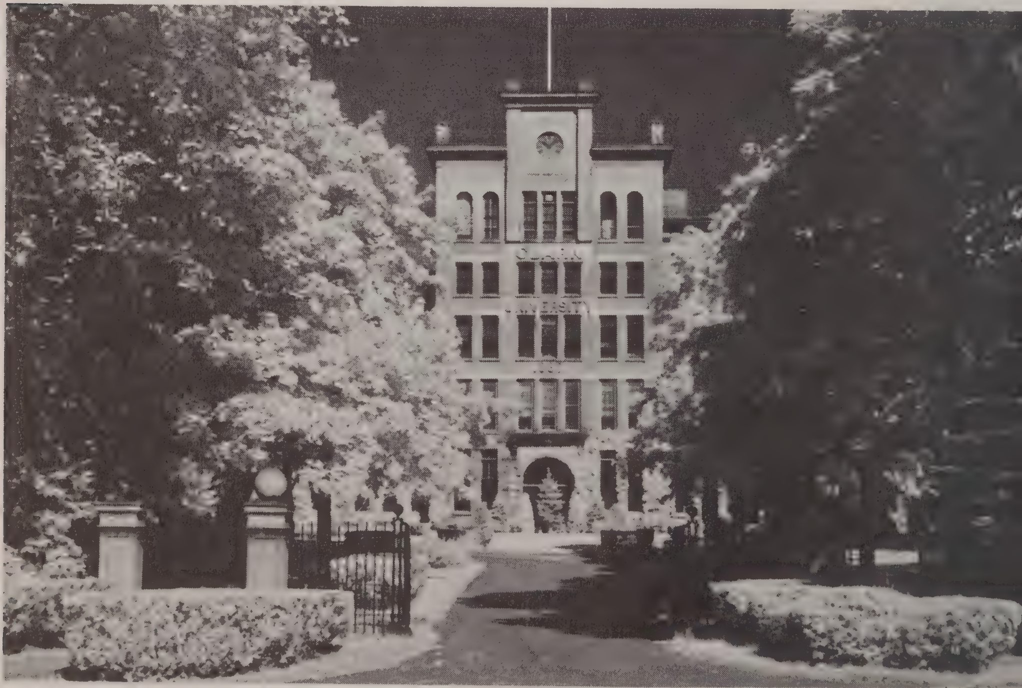
Admission to Clark is highly competitive, and is based on rigid standards which assume that all applicants for admission to the University have demonstrated a capacity and a concern for learning. Student tuition and other charges for 1965-66 are approximately $2,750, including $1,700 for tuition and about $1,050 for room and board. Nearly one-half of the students receive financial aid in the form of scholarships, loans or part-time employment.

The University's History

Clark University was founded in 1887 chiefly through the efforts of two men, Jonas Gilman Clark, a sagacious merchant and businessman for whom the University is named, and Dr. Granville Stanley Hall, an educator of breadth and wisdom.

Reversing the pattern at most colleges and universities in the United States, Clark was founded as a graduate institution. Undergraduate liberal arts education was established 15 years later in 1902.

Mr. Clark, a native of Worcester environs, amassed wealth during the California Gold Rush by supplying miners and others with manufactured goods. He increased his personal fortune through prudent business transactions initiated after his return to the East at the end of the Civil War. He later returned to Worcester where he established a residence and became interested in civic affairs. It was during this period of his life that he decided to endow a new institution of higher learning. His last years were largely devoted to this philanthropic endeavor, with the assistance of his wife, Susan, and a group of promi-



nent Worcester citizens, including George F. Hoar, a United States Senator from Massachusetts, and General Charles Devens.

In 1887, the Trustees of Clark University were incorporated. Construction began in that year on a main building, known today as Jonas G. Clark Hall, and the Science Building. Dr. Hall was appointed the first president of the University. He had been a professor of philosophy, psychology and education at The Johns Hopkins University, where he had established his reputation as a vigorous and original scholar.

Recognizing the need for graduate institutions in the United States (there was at that time only one titled graduate school in the United States—The Johns Hopkins University), President Hall began the organization of an educational institution which would be solely concerned with graduate study and research. As a result, Clark University became the second graduate school established in the United States and for 15 years operated only as a graduate school. This unusual educational idea attracted the attention of a number of brilliant and original scholars, who, upon President Hall's urging, joined the Clark faculty. They constituted one of the most outstanding communities of scholars the country had then known.

The first students entered the University in 1889 and its first two graduates received doctorates in 1891. By 1900, when Clark University became one of the 14 charter members of the Association of American Universities, the brilliance of both teachers and students had established the scholarly reputation of the University.

While Mr. Clark supported President Hall's concept of graduate education, he also was interested in an undergraduate college for men, particularly men who possessed limited financial resources. Accordingly, a codicil to his will, effective upon his death in 1900, provided for the establishment of an undergraduate college. In compliance with the codicil, the Trustees established Clark College in 1902, with an administration and faculty distinct from those of the graduate school. Carroll Davidson Wright, then serving as the first United States Commissioner of Labor, was selected as the first president of the college. Rufus C. Bentley was appointed as the first Dean.

Clark College, from its beginning, had an educational philosophy which was marked by seriousness of purpose and hard work. Inasmuch as the bachelor's degree was granted after three years of study, as opposed to the more common four-year curriculum of the day, the student carried a heavy program of study. There were intramural contests rather than intercollegiate sports; extracurricular activities were at a minimum. Though entrance requirements were informal, a high standard of academic achievement was necessary to remain in College.

The educational program formulated for Clark College by President Wright and Dean Bentley complemented the already-established program of the graduate school. It was only a matter of time before the undergraduate college and the graduate school became an educational and administrative unit.

President Wright died in 1909. He was succeeded by Edmund Clark Sanford, a professor of psychology in the graduate school. President Hall resigned in 1920 and President Sanford felt the time was advantageous to unite the undergraduate college and graduate school. He resigned from the presidency of the College to return to teaching and scholarship, leaving the possibility open for the reorganization of the two entities under a single president. The Trustees endorsed the reorganizational plan, and began a search for a president to lead the University.

In 1920, Wallace Walter Atwood, a professor of physiography at Harvard University, was appointed by the Trustees as president. During his tenure, there were significant changes in both the educational program and physical plant. The three-year curriculum leading to the bachelor of arts degree was increased to four years. The Graduate School of Geography was founded in 1920. Participation in intercollegiate activities, including athletics, was encouraged. Additions to the physical plant included a men's dormitory, an athletic field, a gymnasium, a library tower and an auditorium. The latter was named Atwood Hall in honor of the president.

In 1941, a Division of Business Administration was established, and Clark became a co-educational institution when the Trustees voted to create the Women's College of the University.

President Atwood retired in 1946. His successor was Dr. Howard Bonar Jefferson, who this year begins his 19th year as president of the University. Dr. Jefferson came to Clark from Colgate University, where he was professor of philosophy and Director of the School of Philosophy and Religion.

Under Dr. Jefferson's leadership, the University has continued to develop and be enriched. In 1953, a chapter of Phi Beta Kappa, the national liberal arts honor society, was established at the University.

In 1953, the Evening College of Clark University was organized as an institution for adults learning. It provides university education for adults and offers an opportunity for persons to earn the bachelor's degree, and the master's degree in business administration exclusively by evening study.

In 1958, the Institute of Human Development was established as an adjunct of the Department of Psychology. A center of psychological study, its purpose is to develop an all-inclusive concept of human development. In 1964, the center was renamed the Heinz Werner Institute of Developmental Psychology in honor of the late Dr. Heinz Werner, G. Stanley Hall Professor of Genetic Psychology,

THE GODDARD ROCKET DEV

Emeritus, who served as chairman and as a director of the Institute until his death.

The University's physical plant has nearly doubled during Dr. Jefferson's tenure. A new chemistry laboratory (Jeppson Laboratory) was opened in 1958. In the following year, two new dormitories (Bullock Hall and Wright Hall) and a student center (Jefferson Hall) were opened. The student center was named in honor of Dr. Jefferson. In 1964, a new residential center (Johnson Hall for Women, The New Men's Dormitory and the Student Commons) was opened to provide residential facilities for 296 students. In addition, the University has purchased a number of buildings for use as dormitories, faculty apartments and as a conference center.

Doctoral programs in chemical-physics and education were inaugurated in 1961 and 1962, respectively. A doctoral program in biology was re-established in 1962, Geology became an undergraduate major in 1963, and music in 1964. In 1965, a doctoral program in mathematics was established, and a three-week January period of independent studies for all undergraduates was announced.

The University's Community

When plans for the new university were taking shape in Mr. Clark's mind, he enlisted the aid of a group of far-sighted and influential Worcester citizens from whom, later, the majority of his original board of trustees was chosen. In this was set a pattern for cooperation between the University and the community which has persisted throughout the history of the institution.

The intellectual life of the city has been strengthened by the contributions of the faculty and of distinguished guests whom the University has brought to Worcester. Members of the staff have served local institutions both public and private in many ways, and a variety of University programs help to enrich the cultural life of Worcester.

The College has opened the door to higher education for hundreds to whom the opportunity would have been denied if they had been forced to seek it elsewhere. The Graduate School has aided more gifted students to proceed to the highest levels of intellectual endeavor. Particularly noteworthy has been the service to teachers in the public school system. Finally, the Evening College has greatly widened educational opportunities in the community.

In turn, the University has benefited by the support, both financial and intangible, which it has received from the citizens of Worcester. The interchange of services and ideas with the staffs of other Worcester institutions and the opportunity to use their libraries on a reciprocal basis have been invaluable.

The University is conscious that it is a part of the community and that, as such, it has both obligations and benefits. Its steadfast purpose is to strengthen the bonds of mutual interdependence and cooperation.

The University Campus

UNIVERSITY CAMPUS Clark University is an urban institution, located close to the center of the City of Worcester. The University's 24 major buildings are situated on a compact, 35-acre campus across from a large city park. Nearby the campus is the University's athletic field, used for soccer and baseball. In addition, the University owns a tract of 20 acres, known as the Hadwen Arboretum, a few miles from the campus.

Other colleges located near Clark include Worcester Polytechnic Institute, Assumption College, the College of the Holy Cross, Worcester Junior College, Becker Junior College, Quinsigamond Junior College, Anna Maria College and Worcester State College. Also nearby is the famed Worcester Art Museum and the American Antiquarian Society.

CLARK HALL The first building erected on the campus was Jonas G. Clark Hall, a four-story granite and brick structure in the center of the present campus. It was built in 1887. It houses the offices of the Evening College, the Summer School, the Placement Office, and many of the offices and classrooms of the departments of instruction. In addition, it also contains the Women's Gymnasium, the Language Laboratory and the offices of the Heinz Werner Institute of Developmental Psychology.

SCIENCE BUILDING Clark's second oldest building is the Science Building, built also in 1887. It was the site of the experimentation and research by Dr. Robert H. Goddard, "Father of the Space Age," and Dr. Albert A. Michelson, America's first Nobel Prize winner. One wing of the building and a portion of its mid-section has been

remodeled to provide new research and instruction facilities for the Biology Department. The opposite wing of the same building also has undergone a less intensive remodeling for the Physics Department.

JEPPSON LABORATORY Between these two oldest Clark buildings is one of its newest—Jeppson Laboratory. Completed in 1958, this building has completely modern research and instruction facilities for the Chemistry Department. It contains Johnson Hall, a multipurpose lecture hall seating 174 persons and Kraus Library, specializing in chemical periodicals.

UNIVERSITY LIBRARY Standing at the opposite corner of the main campus is the University Library in which is housed more than 250,000 volumes and one of the most extensive geographical map and chart collections in the United States. The building also has a music room and language center with appropriate records and literature.

LIBRARY TOWER Attached to the north end of the University Library is the Library Tower, built in 1939 to provide space for the growing library collection. An elevator offers access to eight levels of stacks in the tower.

ATWOOD HALL The lower portion of the Tower contains the stage of Atwood Hall, an 800-seat auditorium used for student assemblies, lectures, concerts and other University functions. Atwood Hall also contains the Blue Room for smaller lectures and meetings, and the offices and classrooms of the Fine Arts Department.

GEOGRAPHY BUILDING Site of America's first Graduate School of Geography, the Geography Building also houses the offices of the President, Vice President and other administrative officers. It also quarters the editorial offices of *Economic Geography,* a quarterly publication of Clark University.

ESTABROOK HALL The Departments of German, Music and Mathematics, the University Computer Center, and offices for student organizations are located in newly-remodeled facilities in Estabrook Hall.

ALUMNI GYMNASIUM The Alumni Gymnasium, one of Clark's pre-war buildings, provides a gymnasium seating 800 persons, shower and locker facilities for intramural and inter-collegiate athletics, and the offices of the Department of Physical Education. On the second floor is the Alumni Office and Alumni Lounge, a comfortable meeting room for University organizations.

WRIGHT HALL More than 200 men students are quartered in Wright Hall. Completed in 1959, this fireproof brick dormitory provides both double and single rooms, and lounges, study and recreation facilities.

BULLOCK HALL Bullock Hall, a women's dormitory, also completed in 1959, is similar in design to Wright Hall. It houses 137 women students and has lounges and recreation rooms.

NEW RESIDENTIAL CENTER In the fall of 1964 the University opened a new three-building complex for residential students. The first major addition to the campus under Clark's ten-year development program, the facilities include Johnson Hall, a dormitory for women, which houses 150 students, the men's dormitory, which houses 146 men and the Student Commons building containing dining facilities, lounges and meeting and recreation rooms.

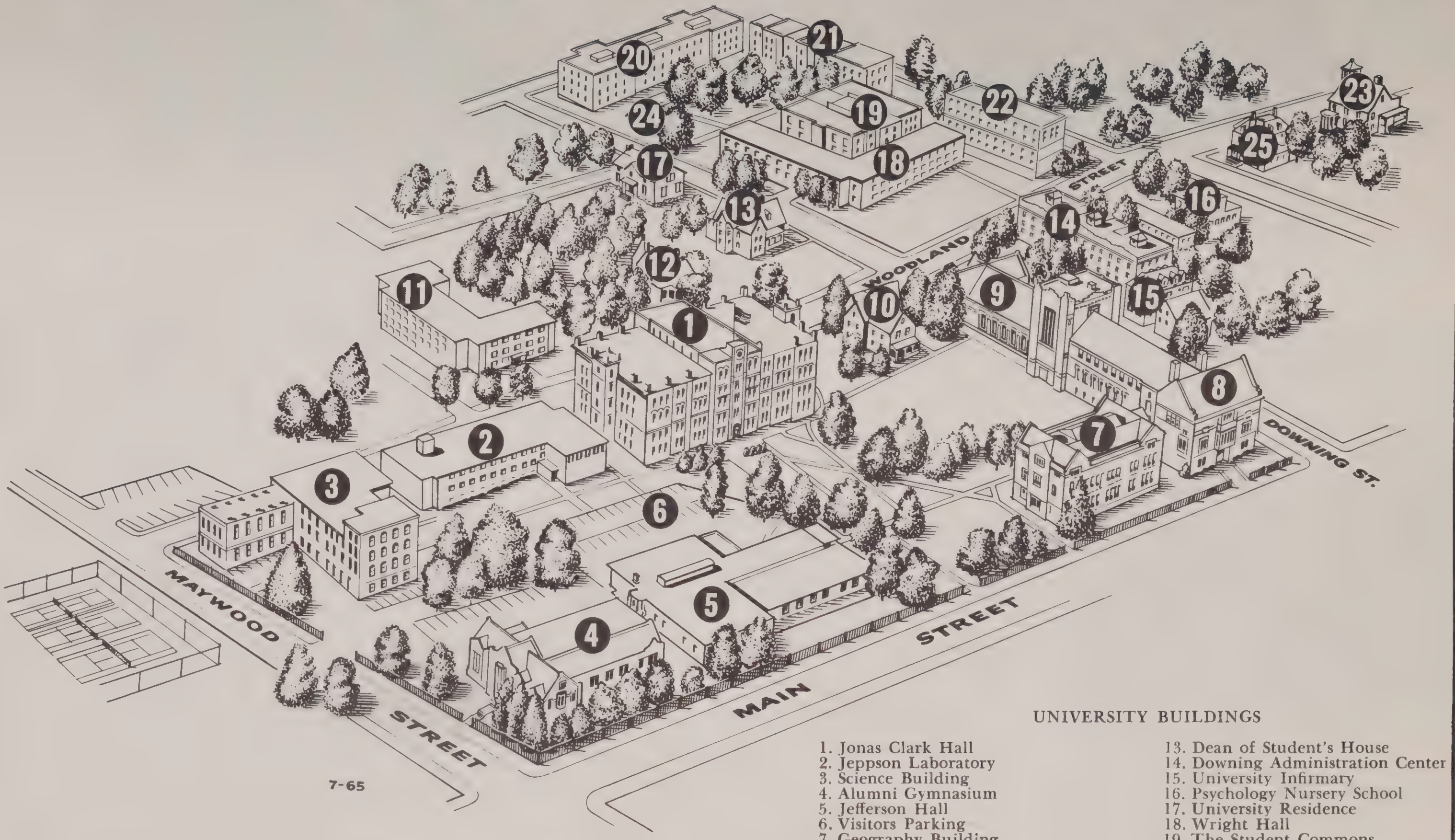
JEFFERSON HALL Another recently-constructed building is the Student Center—Jefferson Hall. Opened in 1959, Jefferson Hall contains one of the University's dining halls, a snack bar, faculty and student

lounges, a recreation room, and the University Bookstore.

ADMINISTRATIVE BUILDING The University Apartments on Downing Street were converted in the summer of 1965 into the main administrative building to house the offices of Admission, the Deans, Registrar, Bursar, Treasurer, Business and Public Relations.

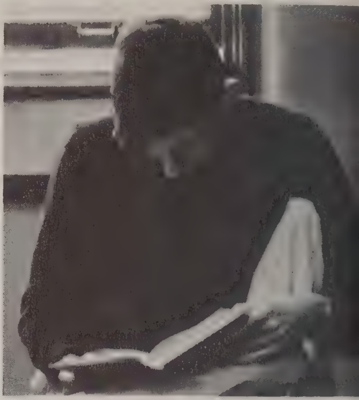
CONFERENCE CENTER Near the main campus is the Conference Center, originally the site of the Institute of Liberal Studies for Executives, but now used for university meetings and functions.

GRADUATE HOUSE The University purchased a large private home in 1961 and has converted it into a Graduate House, a dormitory for graduate students. This contains living quarters for graduate students as well as a comfortable lounge and kitchen facilities. A number of other private homes near the campus have been purchased in recent years to provide housing for married graduate students and faculty members.



UNIVERSITY BUILDINGS

1. Jonas Clark Hall
2. Jeppson Laboratory
3. Science Building
4. Alumni Gymnasium
5. Jefferson Hall
6. Visitors Parking
7. Geography Building
8. The Library
9. Atwood Hall
10. Blakeslee House
11. Bullock Hall
12. President's House (site of the Robert Hutchings Goddard Library)
13. Dean of Student's House
14. Downing Administration Center
15. University Infirmary
16. Psychology Nursery School
17. University Residence
18. Wright Hall
19. The Student Commons
20. Johnson Hall
21. Men's Dormitory
22. Estabrook Hall
23. Conference Center
24. Site of new Dormitory
25. Graduate House



The University Library

Tilton M. Barron, *Librarian*
Marion Henderson, *Reference Librarian*
Elizabeth Hassinger, *Catalog Librarian*

The Clark University Library contains over 250,000 volumes and some 50,000 maps and charts. The major part of the collection is centrally housed, and an open shelf system fosters free access to books and periodicals for student and scholar. Chemistry periodicals are available for reference at the Kraus Library in Jeppson Laboratory.

The collection reflects the history and growth of the University. The combined scholar's library of the early graduate school and the undergraduate library of Clark College have been developed through the years to serve the academic needs of Clark University. The richest holdings are in the fields in which graduate work is offered—biology, business administration, chemistry, economics, education, geography, government, history, international relations, mathematics, physics, psychology, and sociology. More characteristically undergraduate in content are the collections dealing with music, fine arts, language, literature, religion, and philosophy. The Library pays particular attention to major bibliographical and reference tools, and currently receives over 1100 periodicals.

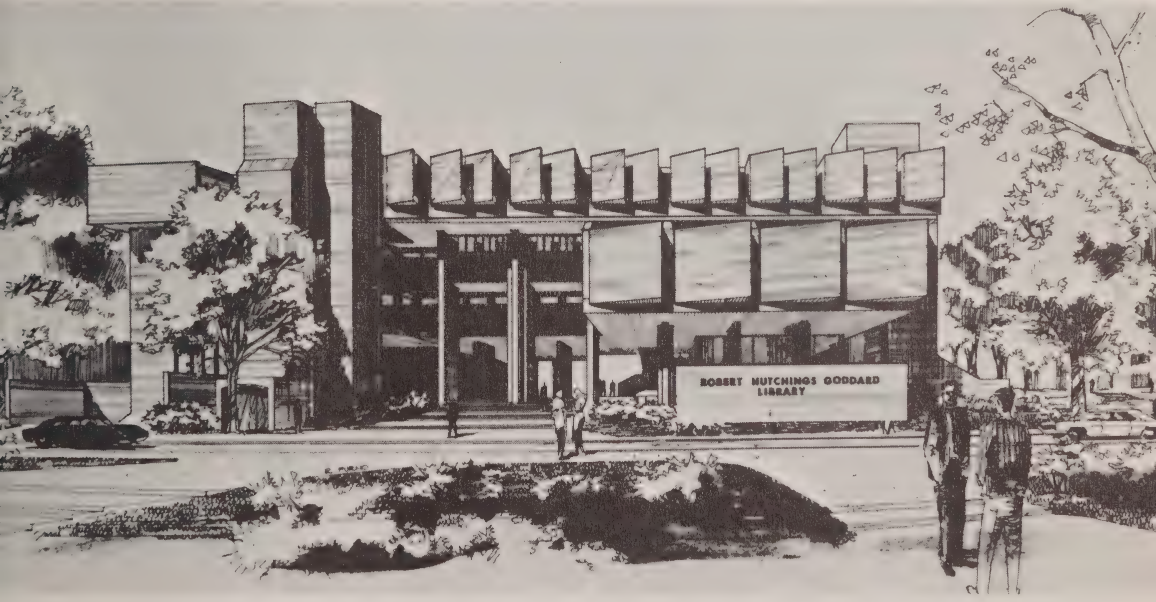
A music library of recordings contains a collection of classical and standard musical works. There is also a listening room in the building.

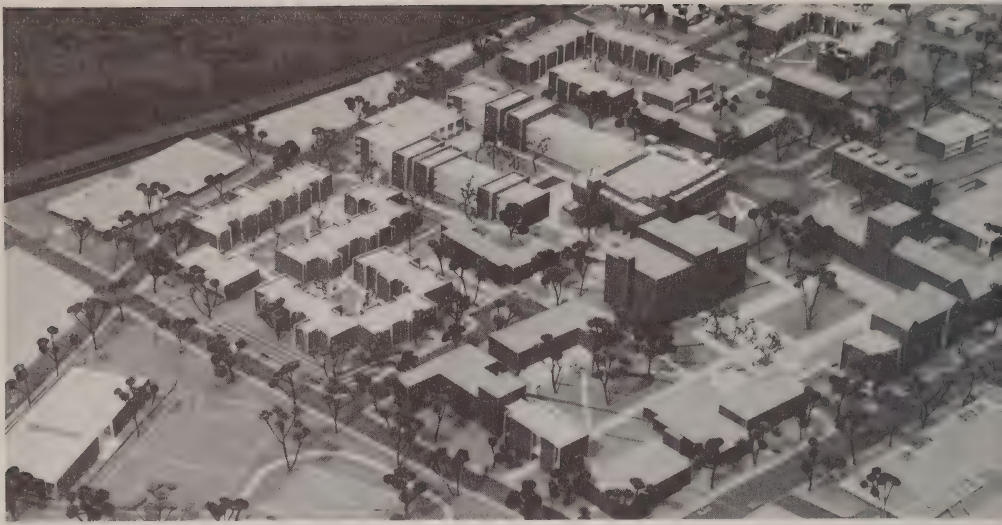
The Clark University Library coordinates its acquisition of new material, and exchanges material, with other libraries in the Worcester area.

Planning is currently underway for a new library to house 600,000 volumes and to accommodate 1,100 readers. The new library will be named the Robert Hutchings Goddard Library, in honor of, and as an international memorial to, Dr. Goddard, Father of the Space Age, distinguished alumnus, and professor of physics at Clark from 1914 to 1942.

The University's Future

At a time when higher education is confronted with unprecedented challenges in meeting the nation's needs, Clark University faces the future with comprehensive, thoughtful plans and an ambitious program for their achievement. In establishing ten-year objectives for the University, trustees, faculty, alumni and friends have been aware both of Clark's unusual history and traditions, and the critical national need for expanded educational services and facilities. Reflecting these considerations, Clark's goal is to hold steadfast to its traditions as a university concerned with scholarship of the highest possible order, and offering graduate work to and beyond the doctorate in selected fields of study. Too, the University aims to preserve—and enhance—the unusually close relationship which exists between undergraduate and graduate education at Clark, thus maintaining one of its most unique features: an intellectual atmosphere which combines the spirit of creative discovery found in the large university with the intimate, personal relationships which are found in the small liberal arts college. Finally, while continuing to foster the values of smallness in every possible way, the University is undertaking planned and limited expansion to an enrollment of 1800 students by 1972, the 85th anniversary of the granting of its charter.





In pursuit of these goals, the trustees have established THE CLARK PROGRAM, a comprehensive, ten-year development effort whose objective is to secure nearly $21 million in new resources by 1972. Of the total sought, $8 million will be required to support endowed professorships, faculty salaries, scholarships and special programs to enrich the educational experience at Clark. The remaining $12.8 million will be applied toward the realization of Clark's *Campus of Tomorrow,* a long range plan for campus development.

Since the commencement of THE CLARK PROGRAM in May, 1962, rapid progress has been made toward its goals. At the end of the first three year phase, nearly $7 million in resources had been secured, and the University had been strengthened by an additional endowed chair, a handsome $2.5 million residential complex, a new central heating plant, and a number of other significant additions to its physical and financial resources.

During Phase II of the program, the University will seek $7,750,000 for endowment and plant development. Major projects during this period will include creation of the Robert Hutchings Goddard Library, and construction of other residential facilities. The Goddard Library, which is planned to be the international academic memorial to the father of the space age, is considered to be the crown jewel of the University's development program. Estimated to cost more than $4 million, it will be located at the center of the University's developing campus of the future. Its facilities will include a special Goddard memorial area, in which will be housed the priceless scientific and personal papers of the former Clark alumnus, faculty member and pioneer in rocketry.

THE CLARK PROGRAM is the largest undertaking of its kind in the University's history—a program rooted in conviction about the importance of what higher education means at Clark, and pursued with confidence that success will be achieved.

BEQUESTS AND DEFERRED GIFTS TO THE UNIVERSITY

Bequests have always been, and will continue to be, an extremely important means of ensuring the continued growth and strengthening of independent educational institutions such as Clark University. For persons who wish to provide for the University in their estate plans, the following basic legal forms are presented with the suggestion that they be reviewed by an individual's legal counsel. Other forms are available upon request to the Office of the President.

Unrestricted Bequest

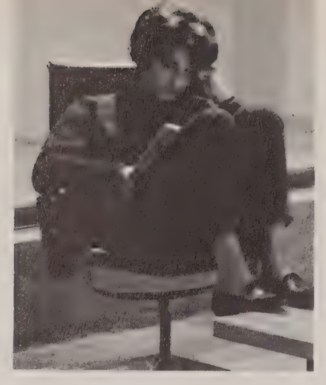
"I give and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here insert the amount of money and/or describe the personal property or real estate)."

Restricted Bequest

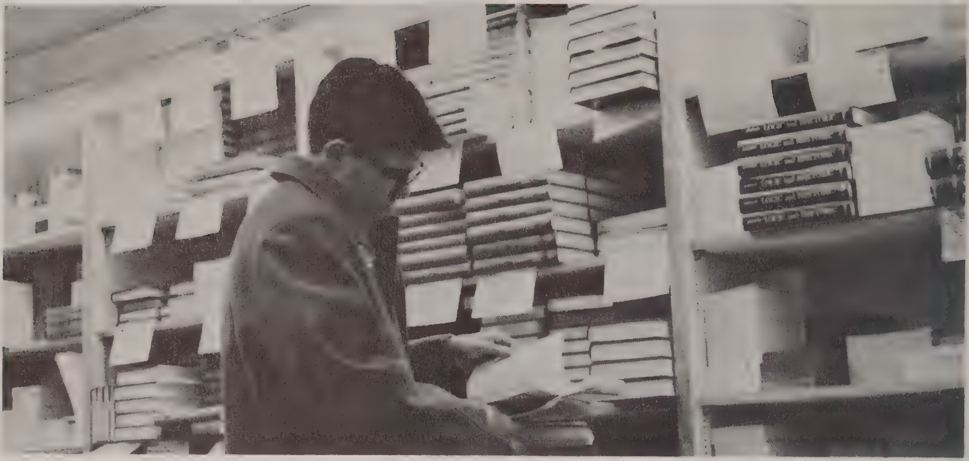
"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here describe the gift to be used or the income to be used) for the following purposes (here specify the purposes for which the gift or the income therefrom is to be used).

In addition to legacies, there are other methods of providing for the University in estate plans. Gift Annuities, Life Income Plans, and Trusts are available at Clark through its Deferred Gifts Program. Specific information may be obtained by writing to the Office of the President. The University will be glad to consult, on a strictly confidential basis, with individuals and their counselors about these other ways of enriching the University.

For purposes of making a gift by will to Clark, the University's legal corporate title is: TRUSTEES OF CLARK UNIVERSITY.



THE UNDERGRADUATE COLLEGES



CLARK COLLEGE Clark College, the undergraduate men's division, and the Women's College constitute the primary undergraduate divisions of the University. Educationally they operate as a unit, and admission and degree requirements are identical in the two colleges. Both offer academic programs in the liberal arts and in business administration.

LIBERAL ARTS The liberal arts program provides for breadth of knowledge and understanding together with the intellectual discipline resulting from concentration in a selected field of special interest. The program, leading to the degree of Bachelor of Arts, possesses a large degree of flexibility permitting adaptation to a wide variety of individual interests.

BUSINESS ADMINISTRATION Fundamental skills as well as broad professional training are offered through the business administration program. Breadth is assured by prescribing required courses in basic subjects and selected functional areas of business activity. Professional specialization is assured by requiring the student to select an area of concentration. Cultural background is available to the student by allowing him to freely elect part of his program from courses in the arts and sciences. The areas of concentration are accounting, economics, finance, marketing, management, and personnel administration. The program leads to the degree of Bachelor of Science in Business Administration.

Admission

FRESHMAN ADMISSION

Clark University welcomes applications for admission from young men and women whose backgrounds show them to be prepared to join whole-heartedly in the life of an intellectual community.

Selection is on a competitive basis with particular emphasis upon scholastic achievement. Applicants are subject to final approval by the Admissions Committee, comprised of members of the faculty and the admissions officers.

APPLICATIONS

Candidates for admission are encouraged to submit their applications as early as possible during the first semester of their final year of secondary school education. All applications must be received by March 1. An application fee of ten dollars, nonrefundable, must accompany each application in order to receive consideration.

ENTRANCE REQUIREMENTS

General: The completion of a four-year high school program or its equivalent, including a minimum of 16 acceptable units of credit, is required for admission to the freshman class. (The term "unit" means a course of study in one subject taken through a school year.) Official records from all secondary schools attended must be submitted.

Subject-Matter Requirements: For admission to the freshman class the subject-matter requirements are as follows:

Required Subjects, 8 units	
English	4 units
Mathematics (algebra and geometry) (Applicants planning to specialize in science or mathematics are advised to present three or more units of mathematics.)	2 units
Foreign Language (in a single language)	2 units
Restricted Electives, 5 or more units	
Social Studies (history, government, civics, etc.)	1 to 4 units
Natural Sciences (biology, chemistry, physics, etc.)	1 to 4 units
Mathematics	1 to 2 units
Foreign Language (A single unit in a beginning foreign language is not acceptable.)	1 to 4 units
Free Electives, not more than 4 units	

Subjects recognized by the applicant's secondary school in its regular program, at the discretion of the Admissions Committee.

Entrance Examination Requirements: All applicants must arrange during their senior year to take and submit the results of the Scholastic Aptitude Test, as administered by the College Entrance Examination Board, prior to final consideration by the Admissions Committee. The December or January administration of these tests is preferred.

To assist the College in determining proper placement in courses, applicants also are required to take three Achievement Tests of the College Entrance Examination Board. The English Achievement Test is required of all applicants. An applicant who plans to continue at Clark the language which he is currently studying in secondary school is required to take the Language Achievement Test. A second Achievement Test for an applicant who does not plan to continue at Clark the language he is currently studying in secondary school, and a third Achievement Test for all applicants may be of the applicant's own choosing.

Further information concerning these testing programs may be obtained from the applicant's secondary school guidance counselor, or from the College Entrance Examination Board. The College Entrance Examination Board may be addressed in the East at Post Office Box 592, Princeton, New Jersey; in the Far West at Post Office Box 9896, Los Feliz Station, Los Angeles 27, California.

Campus Interview: Interviews are available to all students who wish to investigate the prospect of attending Clark University, regardless of whether formal application has been made or not. All applicants who reside within 400 miles of Worcester are required to arrange and attend an on-campus interview prior to consideration of their application. Candidates for admission, who reside more than 400 miles from Worcester, are encouraged to attend an on-campus interview whenever it is possible.

The Admissions Office, located on the first floor of the Administration Building, is open Monday through Friday, 9:00 a.m. until 5:00 p.m., throughout the year, excluding national holidays, and on Saturday between 9:00 a.m. and 12:00 noon, commencing in late October until mid-April. Arrangements for personal interviews and campus tours may be made by writing or telephoning the Admissions Office at least two weeks in advance of the desired date.

Students planning to visit the campus during the summer months also may arrange, in advance of their arrival, for personal interviews.

NOTIFICATION OF ADMISSION AND DEPOSIT

Notification of admission to the incoming freshman class is at the discretion of the Admissions Committee, but will normally begin on or about April 1. No consideration will be given to an applicant until all previously stated requirements have been fulfilled.

Upon receipt of an offer of formal admission a student will be required to indicate acceptance of the offer by making an admission deposit of $50, non-refundable, to reserve a place within the incoming class. This deposit will be credited towards the charges for the first semester.

BASIC FRESHMEN EXPENSES

Basic expenses in the Freshmen year at Clark total approximately $2,730 to $2,880, as follows:

Tuition		$1,700
Board		570
Room		$350-500
Fees		110
Induction	$50.00	
Laboratory	30.00	
Activities	30.00	
		$2,730-$2,880

A schedule of all University undergraduate charges appears on Page 56.

HOUSING ARRANGEMENTS

All freshmen not living with their parents, legal guardian, spouse, or adult member of the immediate family are required to take up residence within University operated dormitory facilities. Rooms will be assigned during the summer prior to the arrival of the freshman class. Inquiries concerning living arrangements should be sent to the Office of the Dean of Students (men) or the Dean of Women.

TRANSFER APPLICANTS

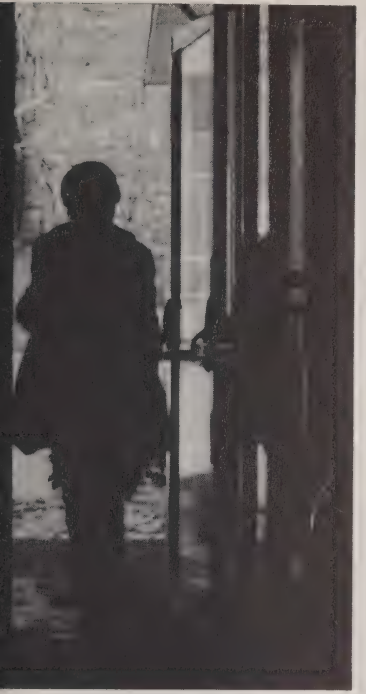
Clark University will consider a limited number of academically qualified applicants for transfer from both four-year colleges and universities, and two-year junior colleges.

TRANSFER REQUIREMENTS

All applicants for admission under the transfer program are required to submit evidence of honorable dismissal, complete transcripts of all previous academic records, including the results of all College Entrance Examination Board tests, and such other information as the Admissions Committee may request. An individual, on-campus interview also is required. No application will be considered for admission until all requirements have been satisfied.

TRANSFER CREDIT

Credit will normally be given for those college level courses previously taken which are comparable to those offered within the Clark University curriculum, and which have been completed with a grade of C-minus or better. No credit will be given for any course completed with a grade of D.



Evaluation of credits for college courses completed elsewhere will be made at the time of a student's first registration at Clark and will be used in planning his course program and in classifying him provisionally as a freshman, sophomore, junior or senior. Transfer students in the business administration program should note that (1) Business English and Business Mathematics are not accepted for credit toward the degree; (2) the University reserves the right to examine a student in any course required for the degree which is offered for transfer credit; (3) a maximum of two year-courses in one area of concentration may be accepted for transfer credit without further confirmation, and more than two courses in one area will not be accepted for transfer credit until a confirming course at a higher level has been completed at Clark with a grade of C-minus or better; (4) in no case, will transfer credit be allowed for more than four courses in any one area; and (5) in any subject in which a full year-course is required at Clark, the University may deny the transfer of credit for a half-year course in that subject.

A graduate of the three-year course of the School of the Worcester Art Museum may be admitted as a candidate for the degree of Bachelor of Arts with the rank of junior in the College. In such cases the usual admission requirements must be met and the general subject-matter requirements for the degree must be satisfied.

FOREIGN STUDENTS

Though Clark University is favorably disposed to receive applications for admission from foreign students, it is not prepared to provide financial aid to the extent of covering a greater portion of their educational expenses. Also, each foreign student accepted for admission must have medical insurance, preferably that available from the Institute of International Education.

Applications from foreign students will not be considered if received after May 1. Foreign students whose native tongue is not English must be able to satisfy the University requirements for proficiency in the English language.

SPECIAL STUDENTS AND AUDITORS

Persons who are not prospective degree candidates, who may wish to take advantage of the opportunities for study provided by the University and who give satisfactory evidence of adequate preparation for the work which they wish to undertake may apply for admission under the status of Special Student. Inquiries concerning this category of student should be addressed to the Office of Admissions.

At the discretion of the administrative officers of the University, Auditors, registered for attendance but not for credit, may be admitted. They are required to pay the regular tuition rates but are not enrolled as students and do not pay the matriculation fee.

SUMMER SCHOOL AND EVENING COLLEGE

Persons who may wish to be candidates for a degree or who may wish to take advantage of the opportunities for study provided by the Summer School or The Evening College are invited to send inquiries concerning admission, programs available, or other questions to the Office of the Director of The Evening College and Summer School, Clark University.

WITHDRAWAL

The University reserves the right to require the withdrawal at any time of any student or auditor whose record in either scholarship or conduct fails to meet the expectations implied by his admission.

Financial Aid

GENERAL INFORMATION

Scholarships and loans are provided by the University from endowed and special funds. Other scholarships and loans are available from various public and private sources.

SCHOLARSHIPS

Scholarships are awarded on the basis of ability, financial need and character. To be eligible for a scholarship, an entering freshmen should have an excellent scholastic record. Freshmen scholarships are awarded for one year only, subject to review at the end of the second semester. Upperclassmen with satisfactory academic records may apply for scholarships at the beginning of any semester. To do so, they must submit the Renewal Parents' Confidential Statement, which may be obtained from the Finan-

cial Aid Office of the University. Transfer students may apply for scholarships during their first semester of residence.

Ordinarily an award for the first semester is continued through the second semester if the holder maintains a satisfactory scholastic record.

Incoming freshmen applying for scholarship aid do so through the College Scholarship Service, Box 176, Princeton, New Jersey or, for the Far West, Box 27896, Los Angeles 27, California. The service provides the University with an independent analysis of the applicant's financial needs. The application (Parents' Confidential Statement) may be obtained at the student's secondary school or from the College Scholarship Service and should be submitted to the College Scholarship Service at the same time that the student applies for admission. In order to receive scholarship consideration the Parents' Confidential Statement must be submitted prior to February 1st. No other scholarship application is necessary. Qualified students are notified about scholarship awards shortly after they receive the decision of their admission. Upperclassmen must annually reapply for scholarships by submitting the Renewal Parents' Confidential Statement, which may be obtained from the Financial Aid Office of the University.

AUTOMOBILES

Scholarship recipients are prohibited from owning or operating automobiles while in attendance at the College.

LOANS

Students who find it necessary to borrow money to continue their education may do so through various sources:

The National Defense Act Student Loan Program provides funds for long-term loans which bear no interest until a student has completed full-time study. Normally a person borrowing from these funds will repay the amount over a ten-year period. Graduates who enter public or private school teaching at the elementary or secondary level are eligible to have up to 50 per cent of their loan excused if they remain in teaching for a five-year period. National Defense Student Loan applications are available upon request only after notification of admission.

Clark maintains low interest, short-term, loan funds with interest bearing immediately upon receipt of the loan.

Commercial deferred or extended payment plans such as various State Loan Programs, The Tuition Plan, Inc. and Education Funds Inc. also are available and should be carefully considered by the applicant.

PART-TIME EMPLOYMENT

A limited amount of part-time employment is available in various offices and departments of the University. In addition, the University actively participates in the College Work-Study Program (Title I, Part C) under the Economic Opportunity Act of 1964. Qualified students from low-income families may obtain further information about this program from the Financial Aid Office of the University.

Further details on all forms of Financial Aid at the University may be obtained by writing to the Financial Aid Officer in care of the Admissions Office.

SCHOLARSHIP FUNDS

The following scholarships are currently available from University funds:

The Charles T. Bumer Memorial Scholarships: Up to four full tuition scholarships, one of which includes tuition, room and board, are awarded annually to entering freshmen. These scholarships are granted to outstanding freshman applicants and are named in honor of the late Dr. Bumer, a professor of mathematics at Clark from 1948 to 1960 and chairman of that department.

The Ellis-Hubley Competitive Scholarships: These are competitive scholarships restricted to male residents of Worcester or neighboring towns who have graduated from secondary schools in those areas. The scholarship accords full tuition plus a stipend and is awarded annually without regard to financial need. The award is normally continued throughout the four years of College. Up to three other full tuition scholarships are awarded annually to applicants who, in the judgment of the Scholarship Committee, rank next to the successful candidate. A candidate must receive the recommendation of his secondary school principal and must also be interviewed by the Scholarship Committee.

Funds for these scholarships are awarded from the income of funds bequeathed in memory of Gordon A. Hubley, Clark '10, and of Theodore T. and Gary G. Ellis.

The Jonas G. Clark Scholarships: These scholarships have been established by the trustees to provide financial aid for undergraduate students.

The Theodore T. and Mary G. Ellis Scholarships: These scholarships provide financial aid for male or female residents of Worcester and Worcester County.

The Whitman Scholarship: Named in honor of Ernest R. Whitman, long-time athletic director at Clark, this scholarship offers full tuition, plus a yearly stipend if the recipient is a resident student, and is awarded to students, usually men, whose qualities of leadership in classroom and campus are outstanding.

The Albert C. Erickson Scholarship: Established by the Tupper Foundation to honor an outstanding Clark student and teacher whose death in 1936 terminated a brilliant career in mathematical physics, this scholarship is awarded annually to an undergraduate, normally near the end of his junior year, who has done outstanding work in physics and mathematics and who shows unusual promise in these fields.

The Gertrude & Eva Hillman Scholarship: Established in the memory of the sister and mother of Archibald M. Hillman to honor worthy students at the University.

The Sanford Memorial Scholarship: Established by alumni in honor of Edmund C. Sanford, president of Clark College from 1909 to 1920, the fund provides an annual scholarship for a male senior undergraduate.

The Livermore and Ambulance Scholarship: The endowment for this scholarship was provided by citizens of Worcester in honor of Charles Randall Livermore, first Clark man to fall in battle in World War I, and of his companions in the Clark Unit of Ambulance Drivers. The scholarship is for male students who are residents of Worcester County.

The Henry A. Willis Scholarships: Male students from Fitchburg, Mass., and vicinity have first consideration in the award of these scholarships. In the absence of suitable candidates from this community, grants may be made to others.

The Helen Brewster Randolph Memorial Scholarship: Established by the late Professor Charles B. Randolph in memory of his mother, the fund provides scholarships restricted to male college students.

The Charles B. Randolph Fund: The fund is restricted to male students, preferably those whose major is a foreign language.

The Alice Friend Newton Memorial Scholarship: This scholarship provides full tuition for an upperclass student in the Women's College whose major is psychology.

The William Richardson Scholarship: This scholarship was established by a bequest of Carlton E. Richardson, Clark '08, as a memorial to his father. The income of this fund is available preferably for male students of the Protestant faith.

The Jennie L. Richardson Scholarship: This scholarship was established by a bequest of Carlton E. Richardson, Clark '08, as a memorial to his mother. The income of this fund is available for female students of the Protestant faith.

The B'nai B'rith Scholarship: The Worcester Chapter, Order of B'nai B'rith, provides a scholarship primarily but not exclusively for the aid of Jewish students.

The Clark University Faculty Women's Club Scholarships: These scholarships are available to undergraduate students, either men or women, who rank high in intellectual and personal qualities.

The Aaron Fuchs Memorial Scholarship Fund: Given by Mrs. Celia Fuchs in memory of her husband and in honor of her sons, Lawrence, Clark '44, and Jerome, Clark '53, this fund provides scholarship aid for non-residents of Worcester or Worcester County.

The Reginald Bryant Allen Fund: The income from this fund is to be awarded annually to a deserving student majoring in mathematics.

The Alumni Group Scholarship: One full tuition scholarship to an accredited freshman is awarded from a fund established by the trustees and the first three classes to graduate from Clark College, '05, '06 and '07.

The Charles W. and Annie L. Bruninghaus Fund: The income from this fund, established in 1957, provides scholarship aid to undergraduates.

The Levi Knowlton Fund: A bequest of Mary H. Nixon in honor of her father, Levi Knowlton, to provide scholarship aid to undergraduates.

The Abraham Persky Scholarship Fund: The income of this fund is used to assist deserving undergraduates.

Pleiades Scholarship: This scholarship is awarded annually to a member of the Women's College on the basis of active citizenship, scholarship and financial need from funds raised by Pleiades, senior women's honorary society.

The National Council of Jewish Women Scholarship: The Worcester section, National Council of Jewish Women, awards a scholarship each year to a Jewish student of the Women's College who resides in Worcester County.

The High School Basketball Tournament Scholarship: Receipts of the High School Basketball Tournament held annually at Clark provide assistance to male undergraduates.

The Art Museum Scholarship: The scholarship is available to Clark students who are enrolled in the affiliated Worcester Art Museum School as Fine Arts majors.

LOAN FUNDS

The following loan funds are currently available to undergraduates:

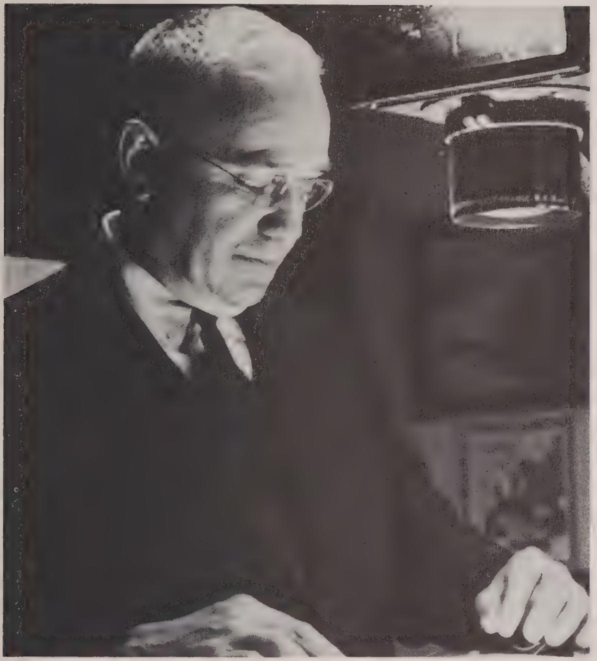
The Alumni Loan Fund: Established by the trustees and alumni for undergraduate assistance.

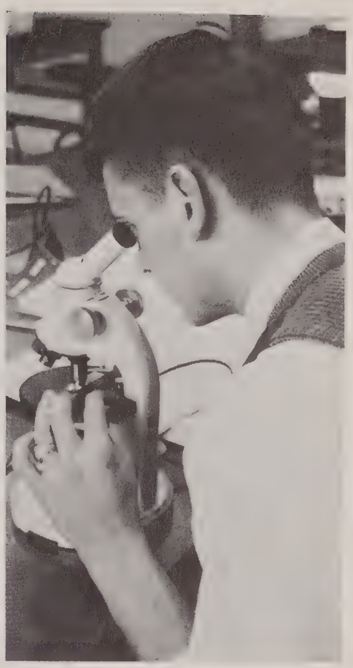
The May S. Rogers Loan Fund: The fund is available to undergraduates who need loan assistance.

The Haskell Talamo Loan Fund: The fund has been established by relatives and friends of the late Dr. Haskell Talamo, Clark '16.

The Louis N. Wilson Fund: The fund was established by the first librarian of Clark, as a loan source for male students in the college.

National Defense Student Loans: These loans are available to undergraduate students, especially those with superior records who desire to teach in public or private elementary or secondary schools.





The Academic Programs

GROUPS

Course credit may be obtained at the undergraduate level in the following fields of instruction which, for administrative purposes, are known as "groups."

Group A. Science and Mathematics: Biology, chemistry, experimental psychology, geology, mathematics and physics.

Group B. Social Sciences: Economics, education, geography, government, history, international relations, linguistics, philosophy, psychology and sociology.

Group C. Language and Literature: Greek, Latin, English, French, German, Spanish, Russian, and comparative literature.

Group D. Fine Arts: Art and music.

MAJORS

A student may major in biology, business administration, chemistry, classics, economics, English, geography, geology, German, government, history, mathematics, music, philosophy, physics, psychology, sociology or Romance languages. A major in fine arts is offered through a program given in cooperation by Clark and the School of the Worcester Art Museum. Courses in education are offered, but a major is not available.

GENERAL EDUCATION

Many courses at Clark offer the student an opportunity to obtain a core of information and of ideas which will be possessed in common with many of his contemporaries and to stimulate intelligent and critical interest in fields of learning where he has no expectation of attaining professional competence. In choosing his program, the undergraduate is urged to supplement his major with courses of this character.

STUDENT PROGRAMS

The undergraduate normally carries a full program of from 12 to 17 semester hours inclusive each semester. In addition, he must meet the requirement for physical education. In general, a course meets three times weekly. Laboratory periods are usually three hours long. Students should consult their faculty adviser or major department when questions of course or program selection arise. Permission to carry a reduced or expanded program must ordinarily be secured from the College Board.

INDEPENDENT STUDY PERIOD

A three-week period immediately following the close of the first semester is set aside for independent study. During this period, the student is required to work on a special project which he has chosen from a list of offerings prepared by faculty members. Programs of extracurricular activities, including athletics, drama, music and lectures, continue as usual during the Independent Study Period.

INDUCTION

Freshmen must attend an induction program held several days before the academic year begins. After meeting initially at the University, freshmen usually spend the remainder of the induction program at a camp or hotel.

During the induction program, freshmen have an opportunity to become acquainted with their classmates as well as members of the University faculty and staff. They also meet upperclassmen and alumni. Placement examinations and other tests are given. Freshmen attend individual and group conferences and register for a program of studies. A continuing program of freshman orientation is held on a voluntary basis throughout the first semester.

A modified induction program is held for transfer students entering the upper classes. These students do not attend the induction programs held off-campus but they do report early to the University for testing, orientation and registration.

FACULTY ADVISERS

A freshman is assigned a faculty member who advises the student on a program of courses and on other matters. After the freshman year, students are encouraged to select an adviser of their own choosing. A change of advisers may be made on formal request addressed to the appropriate Dean.

The adviser assists the student in choosing his program of studies and is usually available for consultation on any matter which the student may wish to discuss with him.

REGISTRATION

Each student is required to register for a detailed program of courses before every semester. The student will be given notice in advance of the dates on which registration is required. Failure to register within the announced period is penalized by a late registration fee.

Changes in registration may be made, with the approval of the student's adviser, for a limited time after the end of the registration period. Later changes involve a formal petition to the College Board.

FRESHMAN READING PROGRAM

During the first several weeks of the academic year, freshmen will meet with faculty members in small groups to discuss significant books which they have been asked to read during the previous summer.

FRESHMAN ACADEMIC PROGRAM

A freshman must choose his entire program from courses which are open to freshmen. All freshmen are required to take an English course (normally English 11), a Group A course, a Group B course and an elective. Candidates for the B.S. in B.A. degree must take Business Administration 100, *Introduction to Managerial Accounting.*

Students especially qualified by preparation, performance and interest may elect a second laboratory science in place of a Group B course.

ADVANCED PLACEMENT

Placement in advanced courses is determined by individual performance on special departmental placement examinations or, in some instances, on the Advanced Placement and Achievement Tests of the College Entrance Examination Board. College credit for certain courses completed in high school may also be granted toward the bachelor's degrees on the basis of the College Entrance Examination Board Advanced Placement Tests.

SOPHOMORE PROGRAMS

A sophomore must give priority in his program to any general degree requirements which remain to be satisfied and should provide for an introduction to the field or subject in which a major is chosen. The remaining elective choices provide the student opportunity to broaden the range of his interests.

Tentative selection of a major is required of A.B. degree candidates at the time of registration for the sophomore year. Candidates for the B.S. in B.A. degree must select an area of concentration at the same time.

Sophomores may elect any course designated by a number beginning with the numeral 1, indicating the course is primarily for undergraduates. They are not admitted to courses designated by a number beginning with the numeral 2, except by permission of the College Board.

JUNIOR-SENIOR PROGRAMS

Juniors and seniors should plan their courses carefully and in consultation with their faculty advisers. However, these students may elect any courses designated by numbers beginning with 1 or 2, indicating courses which are primarily for undergraduates or for advanced undergraduates and graduate students. The selection by juniors and seniors of these courses is subject to any conditions stated in the course description.

Under special conditions and with the approval of the College Board and the Dean of the Graduate School in each case, seniors who rank in the upper third of their class may be admitted to courses designated by numbers beginning with the numeral 3, indicating courses which are primarily for graduate students.

READINGS OR SPECIAL PROJECTS COURSES

Some departments offer readings or special projects courses which may be entered with the permission of the instructor concerned. No student, however, may register for more than eight semester hours of such courses during a given semester or for more than twenty-four semester hours of such courses during his college career.

ACCELERATED PROGRAMS

A student may earn the Bachelor's degree in less than four academic years, provided he is prepared to make the additional effort which is required and is able to maintain the required level of scholarship.

Such accelerated programs are possible through a combination of Advanced Placement credit, a larger than normal program of studies and attendance at summer schools. Credit toward a degree for study at a summer school other than the Clark Summer School is granted only when it is officially approved in advance in each individual case by the College Board.

EXPANDED PROGRAMS

A student whose grade point average for any semester is 2.3 or better may register for a program of more than 17 but no more than 20 semester hours for the following semester.

A senior whose graduation within the academic year depends on the completion of an expanded program during that year may register for more than 17 but no more than 20 semester hours if his grade point average for the preceding semester is 1.7 or better.

WASHINGTON SEMESTER PROGRAM

Clark participates in the Washington Semester program of the American University in Washington, D. C. Under the program, a small number of superior students may be nominated to attend the program, usually in the junior year, studying United States government in the nation's capital. Though any student may be interested in the program, the opportunity should be particularly attractive to students majoring in government, international relations, history, economics or sociology. A credit of 15 semester hours is given for the program toward the Bachelor's degree at Clark. Inquiry and application should be made to the chairman of the Department of History, Government and International Relations.

JUNIOR YEAR ABROAD

In cooperation with such organizations as The Experiment In International Living, The Institute of European Studies and several American colleges and universities, Clark offers its students the opportunity of spending all or a portion of their junior year abroad. These and other programs of foreign study involving academic credit must have prior approval of the College Board.

PARTIAL PROGRAMS

Under special circumstances, students may be permitted to register for a semester program of less than 12 semester hours. Such students are designated as part-time students and are excused from the requirement in physical education.

SPECIAL STUDENTS

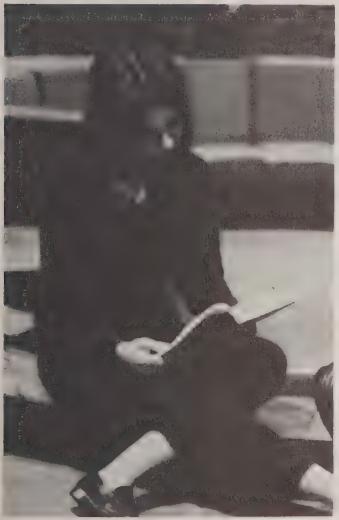
Special students register for such programs as they agree upon in consultation with the instructors concerned. They are excused from the requirement in physical education.

PRE-PROFESSIONAL PROGRAMS

One function of the undergraduate colleges is to prepare students who intend to enter a professional school or take graduate study. Students entering Clark may gain this basic preparation through the selection of the appropriate major. A student planning a professional career should consult with his adviser as early as possible in his college career to best select an undergraduate program.

Pre-medical, pre-dental or pre-nursing students can satisfy pre-professional requirements for entrance into a medical, dental or nursing school by taking necessary basic courses in biology, chemistry or physics. For students planning careers in teaching, Clark offers courses necessary for state certification. It also offers a graduate program in education. For information concerning teaching requirements, consult the Education Department section under the listing of "Departments and Courses."

Pre-law students are not limited to the selection of a particular major or a fixed group of studies; some attention to the social sciences is generally favored. Undergraduates planning to attend law schools are advised to seek a broad liberal arts education.



Requirements for a Bachelor's Degree

GENERAL REQUIREMENTS

A student in good standing who completes the requirements for either the degree of Bachelor of Arts or the degree of Bachelor of Science in Business Administration will be recommended for the appropriate degree unless, in the judgment of the College Board, there is cause for withholding the recommendation.

Residence: Normally at least sixty semester hours of the total one hundred and twenty semester hours required for the Bachelor's degree must be taken at Clark University. Of these, the last twenty-five semester hours must be completed at Clark. Exceptions to this requirement are made only by vote of the College Board.

Course Requirements: All College regulations concerned with credit toward a degree are expressed in terms of semester hours. In undergraduate courses, a semester hour as a unit of credit normally implies one class meeting of approximately fifty minutes in duration or one laboratory exercise of two or three hours duration per week throughout one semester. One hundred and twenty semester hours at a satisfactory level of scholarship are required for the Bachelor's degree.

Physical Education: A student must complete two years of physical education, two hours per week. A fee of $50 will be charged to any student who has an *unexcused* failure in any semester in the two-year men's physical education requirement. A proportionate fee will be charged to women students who have an *unexcused* failure in any portion of the women's physical education requirements.

SPECIAL REQUIREMENTS

In addition to the general requirements for a bachelor's degree, there are specific requirements for the degree of Bachelor of Arts and for the degree of Bachelor of Science in Business Administration.

SPECIAL REQUIREMENTS BACHELOR OF ARTS

Major: A departmental major consists of courses designated by the department for this purpose and totalling at least forty but no more than fifty semester hours. At least half but no more than three-quarters of these semester hours must be in the major subject; the remaining hours must be in other fields of study as designated by the major department. A grade point average of 2.0 or better must be attained in at least forty semester hours of courses in the major and related fields.

Mathematics 11 or 12 is a freshman year requirement for all students intending to major in Group A—Science and Mathematics.

**Group A—Science and Mathematics:* The student must take and pass courses totalling at least six semester hours in each of two fields of study. At least six semester hours must be in courses which include laboratory experience. (2)

**Group B—Social Science:* The student must take and pass courses totalling at least six semester hours in each of two fields of study. (2)

**Foreign Language:* The student must take and pass at least six semester hours of a foreign language at or beyond the third year college level. However, freshmen whose placement tests show them ready for such a third year course may fulfill this requirement by passing twelve semester hours of a second foreign language. (1)

**English:* The student must take and pass three semester hours beyond English 11. (1)

**Fine Arts:* The student must take and pass three semester hours in art or music. (1)

Independent Study: The student must complete with a grade of *pass* work undertaken during each of the independent study periods following any fall semester in which he is in residence. In no case, however, will a student be required to undertake independent study during more than four of such periods.

SPECIAL REQUIREMENTS BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

Mathematics: At least six semester hours in mathematics are required.

Laboratory Science: At least six semester hours in a laboratory science are required.

English: At least twelve semester hours are required in English of which three may be Public Speaking.

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* A student may, without prejudice or penalty, waive any single *one* of the seven requirements listed in these groups.

Sociology, Psychology or Government: At least eighteen semester hours are required in not more than two fields.

Economics: At least nine semester hours in economics are required.

Business Courses: Requirements include nine semester hours in accounting, three semester hours in marketing, three semester hours in management, six semester hours in statistics, three semester hours in Corporation Finance, and six semester hours in Analysis of Business Problems.

Concentration: In the fields of accounting, economics and finance, management or marketing; in addition to the courses already required, the student's program shall include no less than twelve or more than eighteen semester hours in any one field, except that the total semester hours in any one field shall not be less than eighteen. For this purpose, no more than twelve semester hours with a grade of less than C— are acceptable.

Elective Courses: Nine semester hours of the remaining courses must be in the liberal arts (non-business) area.

Independent Study: Same as for Bachelor of Arts degree.

Academic Regulations

GRADES

Grades are reported for each student at the end of each semester. The grades are A—excellent; B—good; C—average; D—poor; and F—failure. The modifying symbols, plus and minus, are used with each of these letter grades, except F, giving 12 levels of passing grades. A report of incomplete is permitted only when sickness or some other unavoidable circumstance prevents the completion of a course.

A *grade point average* is determined for each student at the end of each semester by multiplying the credit in semester hours of each course in which the student is registered by a *grade point* or numerical equivalent of the letter grade received by the student and dividing the result by the total number of semester hours for which the student is registered. The grade points used for the calculation of averages are as follows:

A+ = 4.3   B+ = 3.3   C+ = 2.3   D+ = 1.3   F = 0
A = 4.0   B = 3.0   C = 2.0   D = 1.0
A− = 3.7   B− = 2.7   C− = 1.7   D− = 0.7

A record of failure in a course is final and not subject to change on the basis of any subsequent performance of the student who is involved. Credit for a course in which a failure has been reported may be secured only by repeating the course and earning a passing grade.

A record of incomplete incurred in the first semester must be made up by the end of the academic year; if incurred in the second semester or summer term, it must be made up by mid-semester of the following fall. If a course is not completed within the specified time, the record of incomplete is changed to one of failure.

SCHOLARSHIP STANDARDS

Candidates for the Bachelor's degree must obtain a final cumulative average of at least 1.85 in all courses taken at Clark.

CLASSIFICATION OF STUDENTS

To be promoted, the student must obtain the following cumulative averages:

To the sophomore class	1.70
To the junior class	1.75
To the senior class	1.80

The academic records of students who fail to be promoted will be reviewed by the College Board with the possibility that such students will be placed on probation.

PROBATION

Freshmen and Sophomores who receive a semester grade point average of less than 1.60, Juniors and Seniors who receive a semester grade point average of less than 1.70, and students who receive more than one failure in any semester will be automatically placed on probation.

EXAMINATIONS

Final examinations are regularly given at the end of each semester in most College courses. Approximately one week is set aside for each examination period and an attempt is made to distribute the examinations for any individual student throughout this period. Absence from a final examination, except for the most compelling reasons, usually results in a record of failure in the course. Other examinations and tests may be given at any time during the semester at the convenience of the instructors.

ATTENDANCE

Students are expected to be present on the first day of each semester and to be consistently regular in attendance from day to day until the end of the semester.

LEAVES OF ABSENCE

A student who has completed his freshman year and is in good standing may apply to the College Board for a leave of absence. Such leaves are granted for a period of one or two semesters during which the student's records are kept active. At the conclusion of the period of leave, the student may return to the University without formal application for readmission.

Honors, Awards, and Prizes

ANNUAL HONORS

First honors or second honors are awarded at the end of each year to members of the freshman, sophomore and junior classes who have, in the judgment of the College Board, distinguished themselves by their scholarship during the year.

COURSE HONORS

The bachelor's degree may be awarded *cum laude, magna cum laude* and *summa cum laude* to members of each graduating class whose records, in the judgment of the College Board, warrant this distinction.

DEPARTMENTAL HONORS

A student may elect a program leading to a bachelor's degree with honors in a particular subject at the beginning of the junior year and, in some cases, at the beginning of the senior year. The opportunity is open to both A.B. degree and B.S. in B.A. degree candidates. Under this plan, the department appoints an honors adviser who assists the student in working out a unified program of courses for the junior and/or senior years. The program may include a maximum of twenty-four semester hours in which the student works with a large measure of independence under the supervision of the adviser. In the senior year, the student must satisfactorily pass a comprehensive examination given by the department.

Students may apply in writing to their major department for permission to take honors work, not later than May 1 in the sophomore year or, in some departments, in the junior year. Department approval is necessary for admission to such work. In exceptional cases and in certain departments, application may be made and admission approved by the department concerned as late as the first two weeks of the senior year but only with consent of the College Board.

Admission to an honors program does not relieve the student from any of the standing regulations. A student's candidacy for honors will be terminated at the end of any semester in which he has not maintained a standard satisfactory to the department in which he is doing honors work. If candidacy is terminated for any reason, the amount of credit to be allowed for honors courses will be determined by the College Board in consultation with the major department.

The department may recommend the student's graduation with honors, high honors or highest honors, the recommendation to occur at the conclusion of the honors program. Only students meeting the standards of the College Board for the degree *cum laude* may receive departmental recommendation for high or highest honors.

PHI BETA KAPPA

The Society of Phi Beta Kappa, founded at the College of William and Mary in 1776, is dedicated to the recognition and encouragement of outstanding scholarly achievement in liberal studies. The Clark chapter, Lambda of Massachusetts, was established in 1953. Each year, a limited number of juniors and seniors are elected to membership on the basis of distinction in scholarship in programs which have been definitely liberal in character.

OTHER HONORARY SOCIETIES

Delta Phi Alpha: National Honor Society in German.
Gamma Theta Upsilon: National Honor Society in Geography.
Phi Sigma Tau: National Honor Society in Philosophy.
Psi Chi: National Honor Society in Psychology.
Sigma Pi Sigma: National Honor Society in Physics.

PRIZES AND AWARDS

Homer Payson Little Award in Geology: Provided by a group of interested alumni, the award is presented each Spring to that student who has achieved the highest record in geology classes during the year. The award is named in honor of Dr. Little, a professor of geology at Clark from 1922 until 1954 and also Dean of Clark College.

Prentiss Cheney Hoyt Poetry Prize: A prize of $25 is awarded annually by the English Department for the best poem by an undergraduate. The prize money is received from a fund established by alumni as a memorial to Dr. Hoyt, a professor of English at Clark from 1909 to 1920.

Loring Holmes and Ruth Dodd Drama Contest: A prize of $50 is awarded by the English Department to the student writing the best one-act play. Dr. Dodd was professor of English at Clark from 1910 to 1949 and was chairman of that department.

Physics Achievement Award: Each year, the student in Physics 11 who, in the opinion of the instructor, shows the best performance and improvement in the course work is given a copy of the *Handbook of Chemistry and Physics,* made available by the Chemical Rubber Publishing Company.

Chemistry Achievement Award: A copy of the *Handbook of Chemistry and Physics* is awarded each year to the student who ranks at the top of the class in Chemistry 11.

American Institute of Chemists Award: A medal is awarded by the Chemistry Department each year to a senior chemistry major who demonstrates a high potential for the advancement of chemistry.

Ahepa Greek Prize: A prize of $25 is awarded each year to the best student in Elementary Greek. The prize is made available by the Worcester chapter, Order of Ahepa.

Tuition and Other Charges

GENERAL INFORMATION

Undergraduate tuition, fees and other charges for 1965-66 are listed below. Certain special fees may be required of students in certain departments. Charges for the Evening College and the Summer School can be found in their respective catalogs. Tuition, fees and other charges for graduate students are listed under the catalog section on The Graduate School.

Tuition, board and dormitory charges and certain fees are due and payable prior to the beginning of each semester. These dates for 1965-66 are September 14 for the first semester and February 8 for the second semester. No one is permitted to register for any semester until all financial obligations have been satisfactorily arranged with the University. Veterans relying on government aid should have sufficient resources at the time of registration to meet the initial payments required by the University. A penalty fee is levied for late registration and late payment of charges.

TUITION

Tuition for each semester is based on a normal program of from 12 to 17 semester hours of credit inclusive. Students who enroll for more or less than the normal program are charged the full tuition plus $70.00 per semester hour for all semester hours above 17 or minus $70.00 per semester hour for all semester hours under 12.

Special students who register for less than 12 semester hours are charged at the semester hour rate of $70.00.

REFUND

A student who withdraws during the first week of any semester is allowed a refund of 80 per cent on tuition; during the second week, 60 per cent; during the third week, 40 per cent; during the fourth week, 20 per cent; after the fourth week there is no refund. No refund on fees and other charges, including board, is allowed a student who withdraws from the University.

When a student has left the University on the advice of a doctor within the first four weeks of a semester, and a final decision is made later that the student must withdraw from the University, tuition refund will be made retroactive to the date of the doctor's advisement, based on the schedule listed above.

BOARD All undergraduates, with the exception of those living with their parents, legal guardian, spouse or an adult member of the immediate family, are required to take their meals at the University's dining halls.

CONTINGENCY DEPOSIT All undergraduates are required to pay a $25.00 deposit to cover minor charges, such as property damage and identification cards, which may be incurred during the academic year. They will be billed each year for whatever charges are incurred; the balance is refundable upon completion of their studies.

DORMITORY DEPOSIT The dormitory deposit of $50.00 is required of upperclassmen to reserve a place in a dormitory. It will be credited toward the dormitory charges. The deposit is forfeited if the student does not enroll for the specified semester.

DORMITORY RESIDENCE All undergraduates, with the exception of those living with their parents, legal guardian, spouse or adult member of the immediate family, or those living in a fraternity house, must live in University operated dormitory facilities.

BLAKESLEE HOUSE
DEPARTMENTS OF
ENGLISH
AND
PHILOSOPHY

STUDENT ACTIVITY FEE This fee of $15.00 per semester is required of all undergraduates, including part-time students, but not special students.

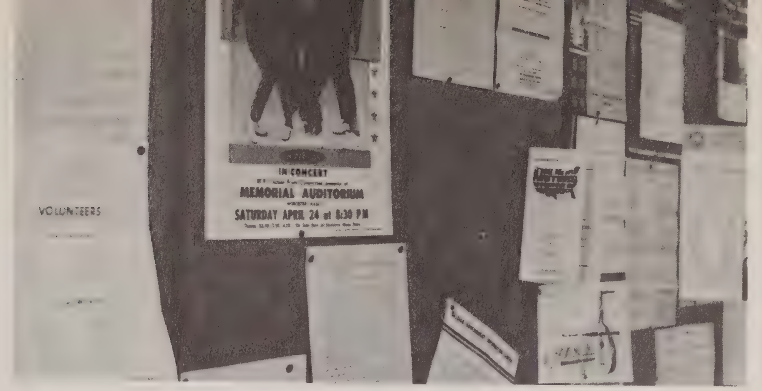
INSURANCE All students are expected to subscribe to the student insurance plan which gives year-round coverage for health and accidents, unless they are similarly protected by other insurance.

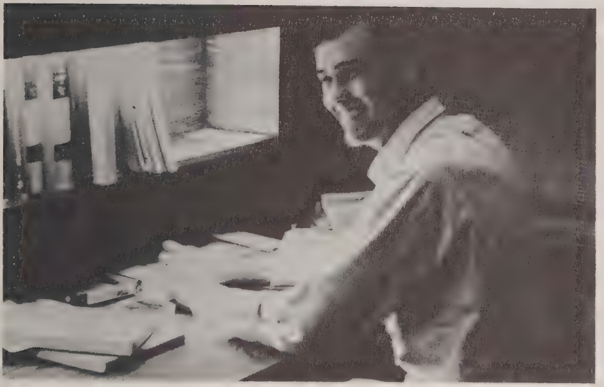
APPLICATION FEE This fee of $10.00 must accompany the application for admission to the Colleges. It is not refundable.

ADMISSION DEPOSIT This fee of $50.00 is required of undergraduate students when they accept the University's formal offer of admissions. It will be credited toward charges for the first semester. The deposit is forfeited if the student does not enroll for the specified semester.

KEY DEPOSIT Fees for keys may be required of the student by certain departments for entrance to buildings, laboratories, personal lockers or mail boxes.

TUITION	Full Program (12 to 17 semester hours)	$850.00 per semester
BOARD		$285.00 per semester
DORMITORY CHARGES	Room rent (single)	$225.00 to $250.00 per semester
	Room rent (double)	$175.00 to $200.00 per semester
ACTIVITIES FEE		$ 15.00 per semester
LABORATORY FEES	Physics, Biology, Geology, Psychology, Languages and Chemistry 11	$ 15.00 per semester
	All other Chemistry courses	$ 20.00
OTHER FEES	Application (undergraduate)	$ 10.00
	Matriculation	$ 5.00
	Induction (Freshmen)	$ 50.00
	Induction (Transfers)	$ 10.00
	Diploma (Seniors)	$ 5.00
	Insurance (see page 49)	$ 25.00
	Late registration	$ 5.00
	Late payment of charges	$ 5.00
	Late registration and late payment of charges	$ 10.00
	Transcripts (no charge for first one)	$ 1.00
DEPOSITS	Admissions	$ 50.00
	Dormitory	$ 50.00
	Contingency (see page 55)	$ 25.00





Student Services

DINING HALLS

The University Dining Halls in the new Student Commons and in Jefferson Hall are operated for the convenience of the students and staff of the University. Service is cafeteria style. Undergraduates who do not live with their parents, legal guardian, spouse or an adult member of the immediate family are responsible for the payment of normal board charges, and are assigned at the beginning of the year to a specific dining facility according to place of campus residence. Other members of the University are welcome to take their meals at University Dining Halls on a semester basis or for single meals. The snack bar in Jefferson Hall is open to all members of the Clark Community.

DORMITORIES

Men not living with their parents, legal guardian, spouse or adult member of the immediate family are required to live in one of the men's dormitories or in a fraternity house. Women not living with their parents, legal guardian, spouse or adult member of the immediate family are required to live in one of the women's dormitories. Rooms are reserved on receipt of the dormitory deposit fee which is later applied to room rental charges.

The University reserves the right, after consultation with dormitory residents, to use dormitory rooms and facilities for University sponsored conferences held during vacation periods.

INFIRMARY

Facilities are provided at the University Infirmary for the treatment of emergencies and for minor medical services to all students while they are on campus. In addition, there is provision for the temporary hospitalization of resident students in cases of more serious illness. A nurse and University physicians are in attendance. The infirmary is open throughout the academic year.

HEALTH AND ACCIDENT INSURANCE

Subscription to a low-cost health and accident insurance plan covering ordinary medical expenses not covered by the University is required of all students unless they are similarly protected by other insurance.

PSYCHOLOGICAL CLINIC

A psychological clinic is available on campus to provide testing and counseling services to students who wish help in academic or personal adjustment. If desired, other more appropriate University or community resources can be recommended to the student. The staff includes the clinic director, other clinical psychologists in the Department of Psychology and consultants in psychiatry, psychiatric social work and clinical psychology.

GUIDANCE AND PLACEMENT BUREAU

Individual counseling on problems of vocational planning and adjustment to college life is also available through the Guidance and Placement Bureau. The service supplements the advisory services of individual teachers and deans. The bureau assists the student in job exploration, informing him of available positions and arranging interviews with potential employers. Students are urged to establish a permanent reference file. Part-time employment opportunities are also listed with the bureau for students who wish to work during their college career to help meet college expenses. The bureau is directed by Dr. James M. Coffee, associate professor of education.

Student Life

STUDENT LIFE Student life at Clark is, as expected at a small institution, friendly and informal. Students are expected to conform to recognized standards of morality, good order and consideration for others. College activities are under a minimum degree of faculty supervision. Though all activities are not listed below, some deserve description.

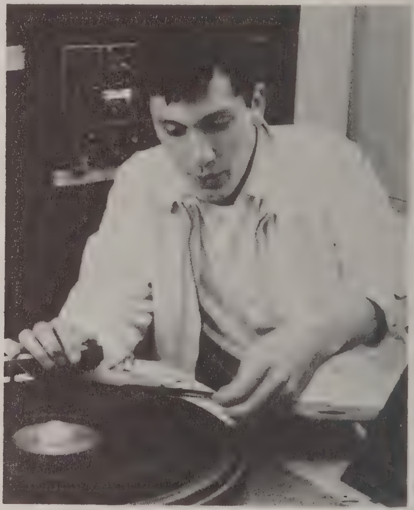
STUDENT ACTIVITIES FEE Non-athletic activities are partially supported by the student activities fee which, in addition, admits students to all athletic contests on campus, provides them with the college newspaper and yearbook and admits them to certain lectures, plays and concerts.

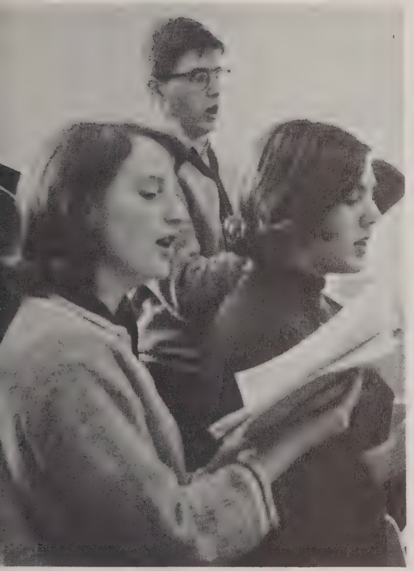
LECTURES AND CONCERTS Throughout the year, outstanding scholars, musicians and artists are brought to the campus for lectures and concerts. Among those heard during 1964-65 were Randall Jarrell, The Juilliard String Quartet, Harlow Shapley, David Schoenbrun, Josh White, The After Dinner Opera Company of New York, Attorney General Edward Brooke and Mrs. Robert H. Goddard.

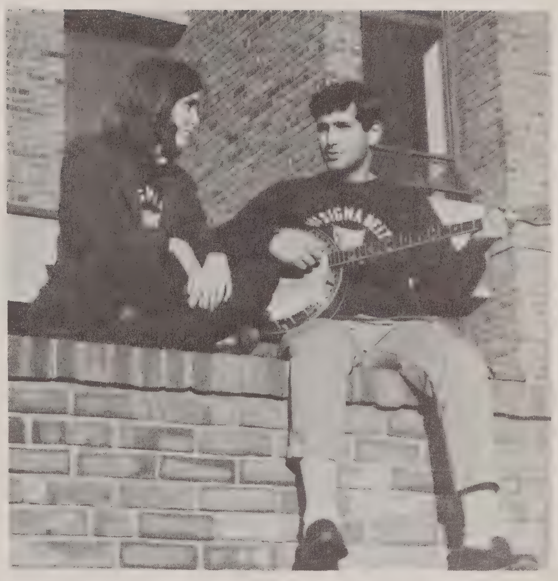
STUDENT COUNCIL The Student Council, elected by the entire student body each spring, is recognized as the official organization representing the student body in its participation in the affairs of the College.

MUSIC Musical organizations open to all students include the University Chorale, Concert Choir, Instrumental Ensemble, Madrigal Singers, and the University Orchestra. The Opera Group has produced Gilbert and Sullivan's *Trial By Jury* and Handel's *Dido and Aeneas.*

DRAMATICS The Clark University Players Society each year presents dramatic offerings with student casts. It has a distinguished record of productions which, in recent years, has included *The Cherry Orchard, The Crucible, Cock-a-Doodle Dandy,* and *The Waltz*







of the Toreadors. An experimental theater group also performs in productions such as Ionescu's *The Bald Soprano* and Pinter's *The Collection.* The City of Worcester also offers to Clark students many other cultural opportunities. The Music Festival in October featuring the Detroit Symphony, and the Community Concert Series are examples. The Worcester Art Museum, world famous for its outstanding collections and art school, sponsors numerous lectures, movies, and concerts.

SPEECH AND DEBATE

The Debate Council frequently directs a High School Debate Clinic and enters numerous intercollegiate debate contests.

RELIGIOUS ORGANIZATIONS

Religious organizations include the Christian Fellowship Organization, Clark Christian Association, The Newman Club, and Hillel Counselorship.

SOCIAL ACTION GROUPS

In recent years, these groups have brought to campus such persons as Norman Thomas, Malcolm X, Rev. Willard Uphaus and James Meredith, offering an opportunity for students to hear and question controversial views.

PUBLICATIONS

Students may join the staffs of *Scarlet,* weekly student newspaper; *Helicon,* student literary magazine; *Fotch,* student humor magazine; *Pasticcio,* student yearbook; and other journals of student opinion.

RADIO STATION

A campus radio station, WCUW, organized in 1964, broadcasts approximately 70 hours per week.

OTHER ORGANIZATIONS

Other campus organizations are affiliated with areas of department instruction, such as the Physics, Psychology and German clubs; hobbies or interests, such as the Chess Club, Pre-Law Club, Photography Club or Society for the Advancement of Management; and other activities, such as the Outing Club, Sailing Club and the Fencing Society.

SOCIAL ACTIVITIES

Dances and other social activities, such as the Senior Prom, Junior-Freshmen Prom, and the Winter Carnival, are regularly scheduled by the student Social Affairs Board.

FRATERNITIES

Four fraternities are associated with the University. They are Lambda Chi Alpha, Tau Epsilon Phi, Kappa Phi and Phi Sigma Delta. All own fraternity houses nearby the campus where members live.

SORORITIES

There are no sororities.

GRYPHON AND PLEIADES

Each year, a group of men and women are chosen from the junior class on the basis of outstanding characteristics to join Gryphon—senior men's honorary society, or Pleiades—senior women's honorary society. The societies play an important role in campus life and in maintaining the traditions of the College. They supervise such annual events as *Rope Pull, Spree Day* and the *Christmas Tea*. In addition, they sponsor annual lectures.

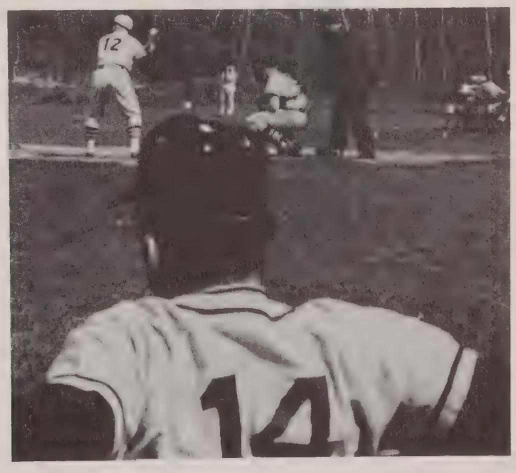
SCARLET KEY

In addition to acting as guides for campus visitors, *Scarlet Key,* a sophomore-junior service organization, undertakes other activities beneficial to the University.

Physical Education and Athletics

PHYSICAL EDUCATION

Two years of physical education, two hours per week, is a prerequisite for graduation. Students are excused from this requirement only on the recommendation of the medical director. Programs are designed to stimulate and encourage students to wider participation in physical activities to promote health and mental efficiency and lead to continuing participation throughout life.



MEN'S PROGRAMS

Men may choose activities from the following areas:

1. *Intercollegiate Athletics*

For men with a reasonably high level of skill and a well defined and strong interest in athletic competition, intercollegiate schedules at the Varsity and Freshmen levels are arranged in baseball, basketball, golf, ice hockey, eight-oared shells, soccer, and tennis. Competent coaches have immediate supervision over the teams.

2. *Intramural Athletics*

The opportunity to gain some of the benefits of participation in competitive athletics is offered to all students through organized intramural competition in touch football, basketball, volleyball, tennis, handball, table tennis, paddleball, and softball.

3. *Physical Education Classes*

Instruction and practice is given in a wide variety of activities including work with a number of team games, individual and dual sports, apparatus, and calisthenics.

WOMEN'S PROGRAMS

The physical education program for women requires, during each of the two years, attendance at classes in body mechanics and one of the rhythmic activities. Participation in one group sport and in one individual sport is also required. Folk dancing, square dancing and modern dancing are offered.

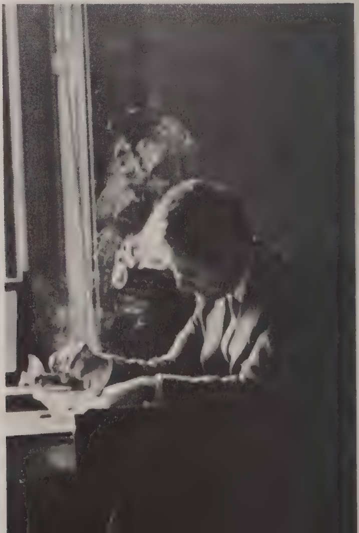
Students in the Women's College can participate in archery, badminton, basketball, crew, fencing, field hockey, golf, horseback riding, tennis, softball and volleyball. Tournaments are held in the spring and fall and trophies are awarded to winners. Women use their own gymnasium for practice but have the use of the Alumni Gymnasium for games with outside organizations.

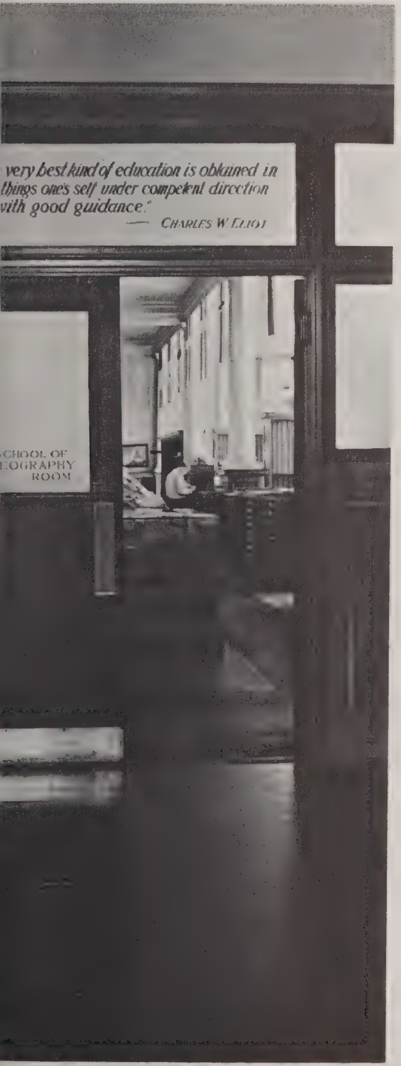
ELIGIBILITY

Participation in organized extracurricular competitive athletics is denied only when a student's scholastic record indicates that continuance in an activity might be responsible for scholastic failure. Students carrying less than a full program of studies are ineligible unless the reduced program permits graduation at the end of the year in which the program is carried. A student transferring with advanced standing from another four-year college is ineligible for one calendar year from the date of registration at Clark to participate in any varsity sport in which he participated at the previous institution. Special students are not normally entitled to participate in competitive intercollegiate sports.

ASSOCIATION MEMBERSHIPS

Clark University is a member of the National Collegiate Athletic Association, the New England College Athletic Conference and numerous sports associations.




very best kind of education is obtained in
things one's self under competent direction
with good guidance."
— CHARLES W. ELIOT
CHOOL OF
EOGRAPHY
ROOM

THE GRADUATE SCHOOL

The Graduate School

GENERAL INFORMATION

Clark University was initially established as one of America's first institutions dedicated exclusively to graduate study and research. Its faculty and graduates have endowed the University with an impressive record of accomplishments through the years. Under the administration of the Graduate Board, Clark offers programs leading to master's and doctor's degrees to qualified holders of a bachelor's degree or its equivalent of attainment.

Master of Arts degrees are offered in the fields of biology, biomedical engineering (in cooperation with Worcester Polytechnic Institute), chemistry, economics, education, geography, government, history, international relations, mathematics, physics, psychology and sociology. A Master of Business Administration degree is offered through the Evening College of the University, and is described in the catalog section on the "Evening College."

Doctor of Philosophy degrees are offered in biology, chemistry, chemical-physics, economics, geography, history, international relations, mathematics, and psychology. A Doctor of Education degree is offered by the Department of Education.

Post-doctoral training is conducted in psychology and the sciences. Inquiries should be addressed to the chairman of the department concerned.

Departments which do not at present accept candidates for graduate degrees may offer courses which are suitable for inclusion in a program of graduate study.

Scholarships and fellowships afford financial aid to candidates for the graduate degrees and are listed at the end of this section. Additional information concerning departments and their offerings will be found in the section entitled "Departments and Courses."

INQUIRIES

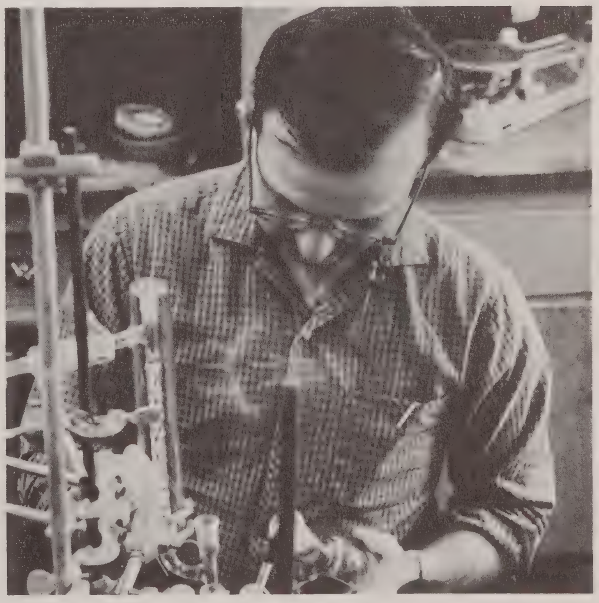
General inquiries and correspondence concerning the Graduate School should be directed to the Dean of the Graduate School. Inquiries concerning specific programs of graduate work and applications for admission should be addressed to the chairman of the department concerned.

ADMISSION TO THE GRADUATE SCHOOL

Admission to the Graduate School may be granted only by the Graduate Board on the recommendation of a department of the University. Admission to the school does not imply admission to candidacy for a degree.

Application: A prospective applicant should communicate with the department in which he expects to do his major work. If he is encouraged by the department to make application, he will be provided with application blanks. These should be returned to the chairman of the department. In addition, the applicant should arrange to have an official transcript of his undergraduate, and any subsequent work, and at least two letters of recommendation from persons who are competent to judge his qualifications for graduate work sent directly to the chairman of the department concerned.

Departments may request the submission of additional material, and some require a record of attainment in the Graduate Record Examination given by the Educational Testing Service, Princeton, New Jersey. All applicants are urged to take, and to submit the results of the Graduate Record Examination verbal, quantitative and advanced tests.



Applications for both admission and for financial aid should be completed not later than February 20 if the applicant intends to begin his studies in the following September. Applications may be submitted, however, throughout the year and are periodically considered by the Graduate Board.

Admission: Admission to the Graduate School is granted for entry only at a specified time and lapses if the student fails to enter at that time. Admission as special or part-time graduate students may be granted to qualified applicants who do not wish to work for a degree or who cannot devote full time to study.

If a student, when admitted, was a candidate for a degree elsewhere, he must arrange upon receipt of the degree to have a supplementary transcript, including a notation of the degree conferred, sent directly to the Registrar of Clark University.

MASTER OF ARTS

Residence: An academic year of full-time study in residence, normally 30 semester hours, or its strict equivalent in summer sessions and part-time study, is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty. In special cases, a student who has completed at least one semester in residence, may petition the Graduate Board in advance for permission to take and transfer credit for a specified course (up to a maximum of six semester hours) at another institution.

Foreign Language: A reading knowledge of a foreign language, usually French or German, may be required of candidates for the degree of master of arts at the discretion of the major department.

Candidacy: Application for admission to candidacy for a master's degree should be filed with the Dean of the Graduate School not later than the first week of the last full semester which the student expects to spend in residence as a candidate for this degree.

Applications will be considered by the Graduate Board when the student has completed one semester of full-time graduate work or its equivalent in residence at the University, obtained the written endorsement of his major department and paid the diploma fee and publication fee.

Candidacy for the degree of Master of Arts is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board. If the candidacy expires without the degree having been awarded, the diploma and publication fees, less any expenses incurred, are returned.

Course Requirements: Each student must meet a minimum course requirement of 30 semester hours, and his program must be approved by the chairman of the department. One of his courses, normally three to six semester hours, may be a research course devoted to the preparation of his thesis.

Thesis: The thesis will be written on a topic in the field of the student's special interest under the supervision of a member of his major department. The ribbon copy of the thesis, a précis approved by the supervising instructor, and an academic history must be deposited in the Registrar's office not later than three weeks before the date of the commencement at which the degree is to be conferred. A second copy of the thesis with a copy of the précis must be delivered to the major department. The précis may not exceed 75 words in length. The title page, précis and academic history forms are obtainable from the Registrar. The ribbon copy of the thesis must be typed on prescribed paper, marginally ruled in black and obtainable at the University Bookstore. For directions concerning the preparation of the deposit copy, see "The Master's Thesis" issued by the Graduate School Office.

A candidate for the degree of Master of Arts may be recommended for the degree without a thesis when he has passed the preliminary doctoral examination.

The thesis is deposited by the Registrar in the University Library. The précis is printed by the University in an annual publication, *Dissertations and Theses.*

Each candidate must make a satisfactory record in such written examinations as may be required by the major department and in a final oral examination by a committee of three or more, two of whom must be members of the Graduate Board.

MASTER OF ARTS IN EDUCATION

The residency, candidacy, course and examination requirements are basically the same as those listed for the degree of Master of Arts.

Thesis: Students may choose one of three options, subject to the approval of the Department of Education. They may choose to (1) prepare a thesis or special report, as required for the M.A. degree; or (2) elect two additional semester courses (six semester hours) in subject-matter fields; or (3) elect a double seminar, six semester hours, in which papers are prepared and presented to fellow students and staff.

Further information concerning the degree of Master of Arts in Education may be found in the catalog section, "Departments and Courses," listed under the Department of Education.

MASTER OF BUSINESS ADMINISTRATION

This degree is offered through a program of the Evening College of the University. For further information, see the catalog section on the "Evening College."

DOCTOR OF EDUCATION

The program leading to the degree of Doctor of Education emphasizes educational psychology, guidance and counseling. The requirements for this degree closely parallel those for the degree of Doctor of Philosophy (see below). Applicants for admission to the program are required to submit results of the Graduate Record Examination. Foreign students may be excused from this admission requirement.

DOCTOR OF PHILOSOPHY

Only such candidates as give evidence of general proficiency, power of investigation and high attainments in the special fields in which their major subjects lie will be encouraged to proceed to the degree of Doctor of Philosophy.

Residence: The minimum requirement is one year of full-time study (not less than 24 semester hours), or its equivalent in part-time work, in residence which is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty. If the degree of Master of Arts has been earned at Clark, this requirement is an addition to the residence requirement for that degree.

Foreign Language: A prospective candidate must pass an examination in the reading of a modern foreign language to be chosen at the discretion of his department from the following: French, German, Russian, Spanish. For the first three, the Educational Testing Service Foreign Language Tests are used; for Spanish the examination is conducted by a committee representing the major and the language departments. The language examination should be taken as soon as possible, but must be passed at the latest before filing application for admission to candidacy,

Each graduate department may make such additional language or related requirements as the student's field of research may demand, and must report such requirements in each case to the Dean of the Graduate School.

Preliminary Examination: Upon completion of preparation in his fields of study a prospective candidate takes a preliminary examination set by his major department. This examination may be written or oral, or a combination of both. The chairman of the department may invite non-members of the department from within or without the University to participate in the examination.

Candidacy: Applications for admission to candidacy must be filed with the Dean of the Graduate School no later than November 1st by students who expect to receive the degree at the following commencement.

An application for admission to candidacy will be considered by the Graduate Board when the applicant has (1) completed two full academic years of graduate work, or its equivalent in part-time work, including one year at Clark University; (2) passed the required examination in a foreign language, (3) passed a preliminary examination in his chosen field of study; (4) obtained the written endorsement of his major department; and (5) paid the diploma fee and publication fee.

Candidacy for the degree of Doctor of Philosophy is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board. If candidacy expires without the degree having been awarded, the diploma fee and publication fee, less any expenses incurred, are returned.

Dissertation: A dissertation which is expected to make an original contribution to some special field of knowledge is required of each candidate. The dissertation, approved by the chief instructor, is laid before the examining committee at the final oral examination.

An abstract of the dissertation, not exceeding 600 words in length, and a précis, not exceeding 75 words, both approved by the instructor under whom they were written, are also required.

Not later than four weeks before the commencement at which the degree is to be conferred, the ribbon copy of the dissertation, together with two official title pages, an academic history, the ribbon copy of the abstract and of the précis, each in a form prescribed, must be delivered to the Registrar. At the same time, a second copy of the dissertation and of the abstract may be required by the major department. The title page, précis and academic history forms are obtainable from the Registrar. The ribbon copy of the dissertation must be typed on prescribed paper, marginally ruled in black, obtainable at the University Bookstore. For directions concerning the preparation of the deposit copy, see, "The Doctoral Dissertation" and "Suggestions for the Preparation of Doctoral Dissertations for Microfilming" issued by the Graduate School Office.

The Registrar deposits the dissertation and the abstract in the University Library where they remain permanently. A microfilm copy of each dissertation is made by University Microfilms, Inc., of Ann Arbor, Mich., and is available for duplication by them on request. The abstract is printed in *Dissertation Abstracts;* the précis is printed by the University in an annual publication, *Dissertations and Theses.*

Final Examination: The final examination is oral and lasts for at least two hours. Additional written examinations may be given if the major department so directs. The candidate is expected to defend his dissertation and, at the discretion of the examining committee, may be questioned on the entire special field of his study. The oral examination is conducted by a committee of at least four members, composed of the chairman of

the department, at least one other member of the Graduate Board, and such members of the department and non-members from within or without the University as the chairman may appoint. The chairman notifies the Dean of the Graduate School, at least one week in advance, of the time and place of the examination and the composition of the committee. The Dean is authorized to invite any person from within or without the University to be present and to assist in the examination.

POST-DOCTORAL STUDY

Post-doctoral students are classified in three categories: *Honorary Fellows* who are visitors for varying lengths of time, always more than a few days, who wish to observe activities of a department, to study, or to carry on research, but without formal teaching duties or support by the University; *Research Associates* who work full-time with designated members of the University staff on research projects, normally supported by grants, without formal teaching duties but with some responsibility for directing laboratory assistants; and *Trainees* who enroll in a formally offered post-doctoral training program.

The Honorary Fellows and Research Associates enjoy faculty status, although the extent to which faculty privileges may be granted may be restricted by availability of space and other resources. For trainees, currently the Steroid Biochemistry Training Program is conducted by the Department of Biology in cooperation with the Worcester Foundation for Experimental Biology. Post-doctoral training is also available in the clinical and developmental analysis of behavior within the Heinz Werner Institute of Developmental Psychology. Such training may be obtained solely through the Institute at Clark or cojointly with the Post-doctoral Program in Clinical Psychology at Worcester State Hospital (see Department of Psychology).

GRADUATE SCHOLARSHIPS, FELLOWSHIPS AND ASSISTANTSHIPS

Graduate fellowships and scholarships are provided for well-qualified, full-time graduate students by the University from endowed funds and from other sources. Financial aid to graduate students is available also in the form of grants from a number of special funds, and in some departments, from sponsored research grants. A limited amount of part-time employment is available in the various offices and departments of the University. Frequently, as in the case of departmental assistants, this employment yields useful experience.

Application: Application for a scholarship or fellowship to begin in September should be made before February 20 to the chairman of the department in which the applicant expects to do his major work. Late applications are acted upon periodically. All applications, after endorsement by the department, go to the Graduate Board for final action.

Research Fellowships: These fellowships may be awarded to graduate students who have fulfilled their residence requirements and who are pursuing a full-time doctoral program.

Teaching Assistant Scholarships or Fellowships: These may be awarded to teaching assistants who are engaged in full-time activity on campus, of which approximately half-time is devoted to teaching duties and approximately half-time, up to a maximum of three courses, is devoted to graduate study.

Teaching Assistantships: In several departments, teaching assistantships, involving less than half-time, are available with stipends which vary accordingly to the amount of service agreed upon.

Note that the departments of Biology, Chemistry, History, Mathematics and Psychology require teaching experience for graduate degrees. See the departmental announcements in the catalog section on "Departments and Courses."

Assistantships: In several departments, assistantships are available. They involve a variety of services with stipends to correspond, and usually provide the student with experience which will be useful in his later professional work.

Graduate Fellowship and Scholarship Funds: Stipends for graduate fellowships and scholarships are provided by:

THE GEORGE FRISBIE HOAR FUND, the gift of Andrew Carnegie in honor of the second president of the University's Board of Trustees;

THE AUSTIN S. GARVER FUND, a bequest from Austin S. Garver, member of the Board of Trustees from 1908 to 1918;

THE CHARLES H. THURBER FUND, provided by Charles H. Thurber, member of the Board of Trustees from 1913 to 1938 and president of the board from 1919 to 1937;

THE GEORGE S. BARTON FUND, a bequest from the Hon. George S. Barton of Worcester, to be used for the benefit of native-born citizens of Worcester;

THE ALUMNI ASSOCIATION FUND, provided by alumni who hold the degree of Doctor of Philosophy to benefit students studying for that degree;

THE JOSEPH F. DONNELLY MEMORIAL FUND, a bequest from Lucretia F. Donnelly to help men who are enrolled in a course leading to the degree of Doctor of Philosophy.

GRADUATE AID

THE JOHN WHITE FIELD FUND, established by Mrs. Eliza W. Field to provide for the minor needs of a scholar or fellow;

THE ELIZA D. DODGE FUND, to be granted to graduate students of limited means who are engaged in research work;

THE MYERS FUND, a gift of George E. Myers, Ph.D., '06, to assist graduate students to do research in education and psychology.

GRADUATE LOANS

Loans, bearing interest at three percent per year, are available for graduate students from these funds:

THE MARY S. ROGERS SCHOLARSHIP AND LOAN FUND, established in 1926 for the benefit of students in the graduate school;

THE SARAH M. THURBER LOAN FUND, established by the late Dr. Charles H. Thurber, former president of the University Board of Trustees, as a memorial to his mother.

NATIONAL DEFENSE STUDENT LOANS

These loans are available to graduate students, especially those with superior records who desire to teach in elementary or secondary schools or who have special aptitude in science, mathematics or a modern foreign language. Applications for these loans should be made at the College Financial Aid Office.

DEPARTMENTAL FUNDS

THE WALLACE W. ATWOOD RESEARCH FUND. The income of this fund may be used at the discretion of the Staff in the Graduate School of Geography for the promotion of field studies in geography by any member of the Staff, or any one of the alumni holding a graduate degree from the Graduate School of Geography, or for the publication of results of such research work.

THE CHESTER BLAND FUND. The income of this fund is preferably used to provide aid to a promising student, either in residence or engaged in research elsewhere under the direction of the De-

partment of History, Government and International Relations. It may also be used to defray the expense of visiting lecturers or of departmental research.

THE WALLACE W. GREENWOOD FUND. The income only is to be divided between the Departments of Physics and Chemistry and to be used for any purpose within the scope of these two departments.

THE MORTON L. "SONNY" LAVINE FOUNDATION, a memorial to Lieutenant Lavine of the United States Army, World War II. The income is to be used for the promotion of research in the Department of History, Government and International Relations.

THE LIBBEY FUND, bequeathed to the University by Mary E. Libbey, is to establish a fellowship in Physical Geography and to aid the Department in that field.

OTHER FUNDS

In addition to the Clark departmental funds listed above, several departments participate in national fellowship or traineeship programs; including:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION traineeships in the sciences.

NATIONAL DEFENSE EDUCATION ACT, TITLE IV fellowships in Colonial and Early United States history.

NATIONAL SCIENCE FOUNDATION traineeships in chemistry and mathematics (in 1966, open also to life and social sciences).

PUBLIC HEALTH SERVICE fellowships and traineeships in biology and psychology.

UNITED STATES STEEL fellowship in Geography.

For further information consult the chairman of departments or the Dean of the Graduate School.

HOUSING AND BOARD

An ample supply of off-campus rooms for both men and women is available in the immediate area of the university. In addition, there is a limited number of rooms for men in the Graduate House and of apartments for couples in University buildings. For information concerning University accommodations, write directly to the Office of Buildings and Grounds, which also keeps a bulletin board of available off-campus rooms and apartments. Students should plan to arrive a few days before registration in order to arrange for housing.

Graduate students are invited to take advantage of board in the University dining halls at the cost of $570 for the academic year (20 meals per week excepting during vacations). They will also find the Snack Bar in Jefferson Hall available for single meals.

INFIRMARY AND INSURANCE

Students paying full tuition are entitled to the use of the University infirmary without supplementary fee; scholars and fellows must pay the infirmary fee of $10. All students may avail themselves of the Accident and Sickness Insurance offered for the calendar year at a cost of $25, plus the infirmary fee (if not covered by fully paid tuition). Brochures explaining the services covered by the insurance policy and application blanks may be procured from the Graduate School Office.

Graduate Tuition and Other Charges

GENERAL INFORMATION

Every student must pay the matriculation fee upon first entering the University. Identification cards are required each year of residence. Tuition is due at the time of registration. A late registration fee is charged if registration is not completed by the end of the second week of the semester. Graduate students do not pay laboratory fees, but departments may make assessments for other purposes.

SCHEDULE OF TUITION AND OTHER CHARGES

Matriculation Fee	$5.00
Identification Card	$1.00
Late Registration (after second week of the semester)	$5.00

TUITION Full Program (12 to 17 semester hours) $850.00 per semester

If less than a full program, the student will be charged according to the fraction of a program indicated by the Chairman of the department on the registration card.

Special (non-degree) Students	70.00 per semester
ETS Foreign Language Tests	7.00
Infirmary (optional for Scholars and Fellows)	10.00
Insurance (optional for all students)	25.00

CANDIDACY FEES

Master of Arts Diploma	5.00
Master of Arts Publication	10.00
Doctor's Diploma	25.00
Doctor's Publication	30.00

(For board and dormitory charges, see "The Undergraduate College"; for the Master of Business Administration tuition and fees, see the "Evening College Catalog.")

THE SUMMER SCHOOL

The Summer School

SUMMER STUDY Intensive instruction in numerous fields of study is offered through two summer programs: a six-week summer session and a three-week intersession program. A variety of courses is offered for undergraduates, graduate students and teachers. A student may register for nine semester hours of credit each summer by attending the Intersession and the Summer Session. Evening courses are also available during the summer to all students to continue their education while engaged in day-time employment. The student is encouraged to attend informal afternoon seminars, conferences and week-end excursions to New England cultural centers.

DEGREES AND CREDIT All courses offered in the Summer Session or Intersession programs are accepted at Clark for credit toward bachelor's degrees unless they are specifically limited in the description of the course. Many courses count toward the degrees of Master of Arts, Master of Arts in Education and Doctor of Philosophy. However, approval for such courses should be obtained in advance from the student's major department.

The degree of Master of Arts may be obtained in certain fields by completing successfully a full-time program for five summers. Students interested in such a program should discuss their plans with the chairman of the department concerned.

Graduate students formally registered in the Summer School may, with the approval of their major department, enroll in thesis courses under the direction of regular members of the staff.

Each single course offered in the Summer School is equivalent to a half-year course of the Clark academic year and yields three semester hours of credit. The double courses in languages and occasionally other subjects, which meet for two lecture periods a day for six and one-half weeks, are equivalent to year-courses or six semester hours.

A student may carry in a normal program one course in the Intersession and two courses in the Summer Session. Permission to carry an additional course may be granted but only in exceptional cases and with approval in writing prior to registration.

SUMMER SCHOOL CATALOG

Detailed information concerning the Summer Session and Intersession are contained in a Summer School catalog which may be received upon request from the director of the Summer School.

EVENING COLLEGE

The Evening College

GENERAL INFORMATION

The Evening College, established in 1953 as an institution devoted to adult learning, has three primary functions. With the conviction that education in our modern society must be a lifelong process, it provides university education for adults of all ages who seek further knowledge and personal development through selected studies in the broad areas of the liberal arts. Further, in recognition of the rapidly developing and changing needs of business and the professions, it provides courses designed to help working men and women improve their occupational skills and to prepare for positions of increased responsibility.

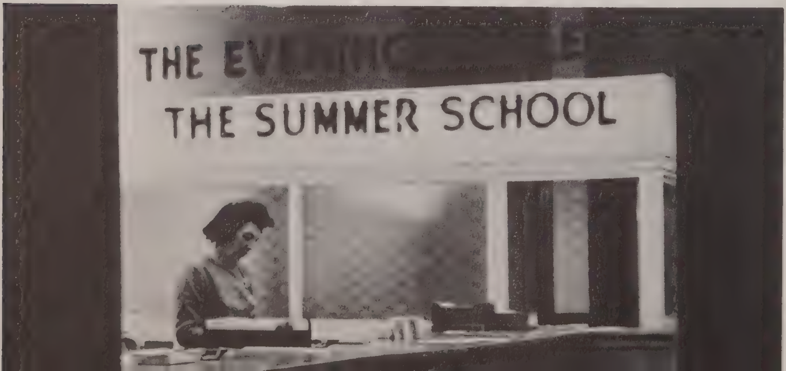
Secondly, the Evening College provides an opportunity for adults to earn the bachelor's degree, exclusively by evening study, through programs planned to meet the unique educational needs of the mature person. Formal programs are available leading to the degree of Bachelor of Science in either general studies or business administration. The Evening College also offers the Diploma in General Studies after completion of a short formal program in liberal education designed specifically for adults. The Evening College also offers the degree of Master of Business Administration.

Finally, as a community service, the Evening College organizes frequent non-credit short courses, institutes and seminars, which are tailored to the specific needs of various civic, professional and business groups.

ADMISSION

Students may be enrolled for either individual courses or formal programs of study.

Individual Courses: Admission to individual courses in the Evening College is open to all interested adults seeking to further their education. High school graduation is not required but



desirable. Continued attendance is contingent upon evidence of ability to profit from the instruction offered. Advanced courses for which prerequisite courses or experience are indicated are open only to persons who meet the stated requirements.

Admission To Formal Programs: Adults applying for a formal program of study in the Evening College will be required to submit records of their previous schooling prior to admission. Except under unusual circumstances applicants must possess a diploma from an accredited high school. Applicants for the Bachelor of Science degree or the Diploma in General Studies who have not attended college previously may arrange to have their high school records forwarded to the Evening College on forms supplied to them on request to the college. Adults who have attended other colleges should request that their transcripts be forwarded directly to the Evening College.

MASTER OF BUSINESS ADMINISTRATION

The Evening College offers a graduate program leading to the degree of Master of Business Administration. Established in 1962, the program is designed to provide the best possible education for men and women at the graduate level for careers in business. Through carefully selected substantive materials and an analytical approach to the practice of management, the program is designed to enable college graduates to supplement job experience in preparing for positions of executive responsibility. The course of study emphasizes administrative decision-making rather than details of initial positions in business. Qualified students may take advantage of the program while remaining in their present business activities and continuing to gain experience through evening programs of study. In offering the program, the Evening College seeks to broaden its services to the local community and to provide university education for adults at an additional level of formal study.

The curriculum consists of 30 semester hours of credit. Details of the curriculum, tuition and admissions requirements will be found in the Evening College Catalog.

EVENING COLLEGE CATALOG

Detailed information about the Evening College is contained in a special catalog available on request from the director of the Evening College.

DEPARTMENTS AND COURSES

Departments and Courses

CONTENTS Listed on the following pages are department faculties, undergraduate and graduate programs and course offerings. The departments are listed in alphabetical order.

DEPARTMENT FACULTIES The staff of each department is listed by rank and by alphabetical order within rank. Department chairmen are listed first. For further information concerning the faculty, see the general faculty listing.

DEPARTMENT PROGRAMS Each department offers information concerning its undergraduate offerings and requirements as well as the offerings and requirements concerning graduate study, if a graduate program is offered. For further information concerning a major field of study, students should consult their faculty advisers or major department chairmen.

DEPARTMENT COURSES The course offerings of each department are listed in their numerical sequence. The announced courses are subject to any modification which may become necessary.

Some departments offer readings or special projects courses which may be entered with the permission of the instructor concerned. No student, however, may register for more than eight semester hours of such courses during a given semester or for more than twenty-four semester hours of such courses during his college career.

COURSE NUMBERING SYSTEM Each course is indicated by number and title. A course number, unmodified by "a" or "b" indicates a year-course, one which continues through two semesters of an academic year. A course number followed by an "a" refers to a half-course usually offered in the first semester. A number followed by a "b" refers to a half-course usually offered in the second semester.

Two-semester courses are divisible unless an explicit statement of indivisibility appears in the course statement. Courses which are indivisible normally require the successful completion of the first semester as a prerequisite to entering the second semester.

COURSE SEQUENCE Courses are arranged, in general, in sequence progressing from elementary to advanced courses.

Courses which are *primarily for undergraduates* are designated by numbers beginning with the numeral *1.*

Courses for *advanced undergraduates and graduate students* are designated by numbers beginning with the numeral *2.*

Courses which are *primarily for graduate students* are designated by numbers beginning with the numeral *3.*

ORDER OF DEPARTMENTS AND OFFERINGS

The listing on the following pages is as follows:

- Biology
- Biomedical Engineering
- Business Administration
- Chemistry
- Classics
- Comparative Literature
- Economics
- Education
- English
- Fine Arts
- Geography
- Geology
- German
- History, Government and International Relations
- Linguistics
- Mathematics
- Music
- Philosophy
- Physics
- Psychology
- Romance Languages
- Russian
- Sociology

Biology

DEPARTMENT FACULTY

Rudolph F. Nunnemacher, Ph.D., *Professor of Zoology, Department Chairman*
Werner P. Koella, M.D., *Professor (affiliate) of Neurophysiology*
Harris Rosenkrantz, Ph.D., *Professor (affiliate) of Biology*
Aldo P. Truant, Ph.D., *Professor (affiliate) of Biology*
Vernon Ahmadjian, Ph.D., *Associate Professor of Botany**
George Camougis, Ph.D., *Associate Professor (affiliate) of Physiology*
Donald S. Layne, Ph.D., *Associate Professor (Affiliate) of Biology, Director of Steroid Training Program*
David G. Moulton, Ph.D., *Associate Professor of Physiology*
John T. Reynolds, Ph.D., *Associate Professor of Microbiology*
Joseph C. Curtis, Ph.D., *Assistant Professor of Biology*
Burton N. Gates, Ph.D., *Research Associate in Botany*

*On Leave 1965-1966

UNDERGRADUATE PROGRAM

Biology 11 presents a comprehensive view which is prerequisite to all other courses in the department. A departmental major must take Biology 11, three advanced courses in biology, Chemistry 11, Physics 11, Mathematics 11 and at least one additional course in chemistry, physics or geology. Mathematics 11 does not count toward the fulfillment of the major requirements.

HONORS PROGRAM

An Honors Program is available to especially well qualified majors and encourages the student to engage in an independent research project during the senior year. Frequently the Honors Project is the continuation of research begun during the summer under the National Science Foundation Undergraduate Research Participation Program.

GRADUATE PROGRAM

The department offers courses leading to Master of Arts and Doctor of Philosophy degrees in specialized phases of bacteriology, biochemistry, botany, cytology, physiology and zoology. Admission to the graduate program assumes adequate preparation in the basic sciences, an overall undergraduate record of B or better, and satisfactory standing in the Graduate Record Examination. Tuition scholarships and Teaching Assistantships are available. More detailed information can be obtained by writing to the department chairman.

Master of Arts: The program usually requires three or four semesters of academic work, including participation in the Graduate Seminar—Biology 350, teaching experience, and research culminating in an acceptable thesis. Prior to or during the program the student must have a semester course beyond the introductory biology level in botany, zoology and physiology.

Doctor of Philosophy: The requirements are identical with those of the University and can be found in the catalog section on The Graduate School and includes teaching experience. The student's program is planned according to his needs with his program director.

Training Program for Steroid Biochemistry

A training Program for Steroid Biochemistry has been established at the University through the cooperation of the Departments of Biology and Chemistry with the Worcester Foundation for Experimental Biology with the support of the National Cancer Institute and the U. S. Public Health Service. Post-doctoral fellowships are available for persons possessing the Ph.D., M.D., or equivalent training. Further information may be obtained from the *Program Director, Dr. Donald S. Layne.*

COURSES

Note: Laboratory fees are charged for all courses where either a laboratory or a laboratory fee is indicated.

11. General Biology.

Principles and problems of modern biology. This course, or its equivalent, is a prerequisite for all other courses in the department. Three lectures and one laboratory period per week. Open to freshmen. *Four semester hours each semester.* Staff.

12. Vertebrate Morphology.

The year course is divided into thirds of which the first is concerned with comparative anatomy, the second histology and the final third embryology. Two lectures, two laboratories per week. *Four semester hours each semester.* Mr. Nunnemacher.

15b. Systematic Botany. Not offered, 1965-66.

Taxonomy and classification of flowering plants, with emphasis on New England flora. A collection of 100 plants is required as well as a two-day spring collecting trip to the Berkshires. Three lectures and one laboratory period per week. Prerequisite: first semester, Biology 11. *Four semester hours.* Mr. Ahmadjian.

17b. GENERAL ECOLOGY.
Introductory study of the distribution of plants and animals, their inter-relationships and adaptions to a wide variety of environments such as seashore, sand dunes, woodlands and ponds. Field trips to Mt. Monadnock and other areas of ecological interest will be taken during laboratory periods or on Saturday. Three lectures and one laboratory period per week. Usually offered during the summer. *Four semester hours.*

18b. GENETICS. Not offered, 1965-66.
Principles and problems of genetics. *Three semester hours.* Mr. Ahmadjian.

19a. MICROBIOLOGY.
An introduction to the biology of microorganisms. Laboratory work will be concerned with an introduction to the methodology involved in the study of bacteria, algae and fungi. Prerequisites: Biology 11 and Chemistry 11 or their equivalents. Biology 137a or an introductory semester course in Physiology is recommended. Three lectures, one laboratory per week. *Four semester hours.* Mr. Ahmadjian, Mr. Reynolds.

137a. CELLULAR BIOLOGY.
The cell as a structural and functional unit. Introduction to the physiochemical properties and metabolic roles of molecules and macromolecules of cellular origin. Discussion of the roles of the nucleus and cytoplasm in the regulation of cellular processes. Three lectures per week. Prerequisite: Biology 11. *Three semester hours.* Mr. Curtis.

140a. PRINCIPLES OF PHYSIOLOGY. Not offered, 1965-66.
Introduction to basic physiological concepts at the cellular level followed by animal physiology, with emphasis on vertebrates. Three lectures per week. Prerequisite: Biology 11. *Three semester hours.*

204b. LICHENOLOGY. Not offered, 1965-66.
Taxonomy and physiology of lichens and isolated lichen components. Laboratory emphasis on special projects and field work. Three lectures and one laboratory period per week. Prerequisite: Biology 19a or consent of the instructor. *Four semester hours.*
Mr. Ahmadjian.

215a. INVERTEBRATE ZOOLOGY. Not offered, 1965-66.

222. ADVANCED EMBRYOLOGY.
Introduction to experimental morphogenesis. Consideration of the chemical and physical events associated with cellular differentiation, tissue interactions and growth regulation during embryonic development. Three lectures per week. Prerequisite: Biology 12. *Three semester hours.* Mr. Curtis.

224a. NEUROANATOMY. Not offered, 1965-66.
The structural and functional organization of the human central nervous system. Three lectures or demonstrations per week. Prerequisite: Biology 12 or consent of the instructor. *Three semester hours.* Mr. Nunnemacher.

225a, b. ELECTRON MICROSCOPY
Introduction to the principles of electron optics, use of the electron microscope, preparation of specimens and the techniques of electron microscopy applicable to biological investigations. Two lectures and two laboratory periods per week. Prerequisites: permission of the instructors. *Four semester hours.* Mr. Curtis, Mr. Nunnemacher.

231b. BACTERIAL PHYSIOLOGY. Not offered, 1965-66.
Lecture topics and laboratory exercises selected to demonstrate chemical and physical principles underlying bacterial activities. Two lectures and two laboratory periods per week. Prerequisites: Biology 230b and consent of the instructor. Biology 240a is recommended. *Four semester hours.* Mr. Reynolds.

232b. BACTERIOLOGY.
The biology of the bacteria and certain related forms. Prerequisites: Biology 19 and Chemistry 13 or their equivalents. Three lectures and one laboratory per week. *Four semester hours.* Mr. Reynolds.

240a. GENERAL PHYSIOLOGY.
Introduction to the physical and chemical phenomena underlying the functions common to living organisms. Two lectures and two laboratory periods per week. Prerequisites: Biology 11, Chemistry 11 and Physics 11. *Four semester hours.* Mr. Moulton.

241b. ENDOCRINOLOGY. Not offered, 1965-66.

242a. COMPARATIVE ANIMAL PHYSIOLOGY. Not offered, 1965-66.

249b. NEUROPHYSIOLOGY.
Physiology of central and peripheral nervous systems, receptors and muscles, considered in both vertebrates and invertebrates. Three lectures and one laboratory period per week. Prerequisite: Biology 140b or 240a. *Four semester hours.* Mr. Moulton.

250a. UNDERGRADUATE SEMINAR IN BIOLOGY.
Designed to provide experience for advanced undergraduates in the presentation and critical evaluation of research reports. Limited enrollment. Equivalent of three lectures per week. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Reynolds.

257b. BIOPHYSICS. Not offered, 1965-66.
Consideration of the physical properties of biological systems. Influence of various physical agents upon biological structure and function. Physical methods of analysis of biological macromolecules. Three lectures per week. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Curtis.

260a, b. SPECIAL PROBLEMS.
Advanced semi-independent study of an approved topic under the direction of a departmental member. Consent of instructor required. Required for honors in biology. *Three or four semester hours.* Staff.

S. 267. INSTRUMENTAL PROCEDURES IN BIOLOGICAL INVESTIGATIONS.
Theory and application of various analytical procedures and use of modern instrumentation in biological problems. Practical introduction to analytical balance, centrifuge, vacuum distillation, pH, dialysis, chromatography, counter-current distribution, photoelectric colorimetry, fluorometry, turbidometry, spectrophotometry and spectroscopy. Instrumentation will be coordinated with techniques of tissue preparation, histochemistry and radioactive tracers. Offered in the summer. *Four semester hours.* Mr. Rosenkrantz.

268a. PRINCIPLES OF PHARMACOLOGY. Not offered, 1965-66.
This course is intended to acquaint the student or research worker with established principles and the more important phenomena involved in the study of pharmacology. Particular emphasis is placed on the quantitative aspects of the interaction of chemical

compounds or drugs with biological systems. The principal pharmacological actions of several important drugs are illustrated. *Three semester hours.* Mr. Truant.

270. BIOCHEMISTRY.
The principles of mechanisms of biochemical reactions in an understanding of the metabolism of foodstuffs and the role of enzymes, vitamins and hormones. An acquaintance with the instrumentation in biochemical research will be presented. Prerequisite: Chemistry 13. Three lectures, one laboratory per week. *Four semester hours.*

281a. ADVANCED LICHENOLOGY. Not offered, 1965-66.
An introduction to the literature and research techniques of experimental lichenology. Three lectures per week. *Three semester hours.* Mr. Ahmadjian.

300. READINGS AND RESEARCH IN BIOLOGY.
Three to four semester hours. Staff.

325a. SEMINAR IN ULTRASTRUCTURE.
Discussion of the structure of macromolecules and subcellular organelles in relation to their biological functions. Evidence obtained by a variety of physical and chemical methods will be considered, particular emphasis being placed on electron microscopic studies. *Three semester hours.* Mr. Curtis.

332a. SEMINAR IN BACTERIOLOGY.
Selected topics in bacterial ecology and physiology. Consent of instructor required. *Three semester hours.* Mr. Reynolds.

350. GRADUATE SEMINAR. Staff.

360. MASTER'S THESIS. Staff.

390. DOCTORAL DISSERTATION. Staff.

Biomedical Engineering

The Program in Biomedical Engineering is a graduate program under the joint sponsorship of Clark University and Worcester Polytechnic Institute. The aim of the program is to combine the resources of the two institutions to provide special education in this rapidly developing interdisciplinary area. Students entering the program must have a bachelor's degree in mathematics or one of the basic or engineering sciences. The degree program will include a minimum of five full courses taken at both institutions and leading to a master's degree. All students will be expected to achieve some basic knowledge in biology, chemistry, engineering, mathematics and physics. Since a thesis on research is also required, the program will normally require at least two years of study. In general, the requirements for the degree will be consistent with the requirements for master's degrees at both institutions. The detailed requirements for each student will be worked out by a Committee on Biomedical Engineering made up of faculty members from both institutions. Students enrolled at Clark will receive an M.A. in Biomedical Engineering, the actual degree noting the cooperation of W.P.I. Conversely, students enrolled in the first instance at W.P.I. will receive the M.S. in Biomedical Engineering, with the cooperation of Clark indicated on the degree.

For further information, write to: Director, Biomedical Engineering Program, Clark University, Worcester, Massachusetts 01610.

Division of Business Administration

DEPARTMENT FACULTY

Howard W. Nicholson, Ph.D., *Professor of Economics**
F. Eugene Melder, Ph.D., *Professor of Economics*
George E. Hargest, M.B.A., *Associate Professor of Economics and Business Administration, Acting Director of Division of Business Administration***
George A. Balko, Jr., M.B.A., *Assistant Professor of Economics and Business Administration****
Frederick E. Bamford, M.B.A., *Assistant Professor of Economics and Business Administration*
Albert J. Sargent, M.B.A., *Lecturer in Business Administration*

*On Leave 1965-66
**On Leave, first semester, 1965-66
***On Leave, second semester, 1965-66

UNDERGRADUATE PROGRAM

The Division of Business Administration presents and supervises a four-year course of study leading to the degree of Bachelor of Science in Business Administration. The program is given cooperatively by the departments of Economics, English, History, Government and International Relations, Mathematics, Psychology, Sociology and the Natural and Physical Sciences. General supervision of the program rests with the Director and the Administrative Committee representing the faculty.

For the special requirements for the degree of Bachelor of Science in Business Administration, refer to that section listed under degree requirements. Students should note that the following business administration courses may not be counted toward the degree of Bachelor of Arts: 104a, 152b, 154b, 172a, 176a, 202b, 204b, 206, 253b, 254b.

COURSES

Accounting

100. Introduction to Managerial Accounting.
Approaching accounting as a tool of management, the course includes the development of the accounting cycle, the preparation and analysis of financial statements, fund flows, cost data, and the needs of management. *Three semester hours each semester.*
Mr. Hargest and Mr. Sargent.

102. Intermediate Accounting.
Accounting principles and procedures and their application to asset, liability and proprietorship accounts. Analysis of financial statements, including statements from incomplete data and the statement of application of funds. Emphasis is on problem analysis and solution. Indivisible course. Prerequisite: B.A. 100. *Three semester hours each semester.* Mr. Hargest and Mr. Sargent.

103a. Financial and Managerial Accounting. Not offered, 1965-66.
Accounting for managerial decisions through the analysis and interpretation of financial data, cost concepts and applications, cost controls, cost-volume profit relationships, budgeting, and profit planning. Prerequisite: B.A. 100. *Three semester hours.*

104a. FEDERAL TAX ACCOUNTING.
Legal and accounting fundamentals of federal income and social security taxes with emphasis on the preparation of returns. Prerequisite: B.A. 100. *Three semester hours.*

202b. COST ACCOUNTING.
Basic principles of cost accounting as related to job order, process, estimated and standard cost systems. Cost for profit determination and for managerial control and decision-making are considered. Offered in alternate years. Prerequisite: B.A. 100. *Three semester hours.* Mr. Hargest.

204b. AUDITING.
Analysis of the purpose and scope of the several classes of audits and discussion of professional ethics, auditing standards, internal control systems, audit procedures applicable to asset, liability and proprietorship accounts, and the use of worksheets and preparation of statements and reports. Prerequisite: B.A. 102. *Three semester hours.*

206. ADVANCED ACCOUNTING. Not offered, 1965-66.
Theory and practice of accounting for branches, mergers, receiverships, estates and trusts, consolidated statements, budgets, municipal accounts, and other topics of advanced nature. Offered in alternate years. Prerequisite: B.A. 102. *Three semester hours.*

Economics and Finance

Descriptions of these courses can be found in the announcement of the Department of Economics.

ECONOMICS 11. PRINCIPLES OF ECONOMICS.
Required of B.S. in B.A. degree candidates.

ECONOMICS 13a. MONEY AND BANKING.
Required of B.S. in B.A. degree candidates.

ECONOMICS 13b. PROBLEMS IN MONEY AND BANKING.

ECONOMICS 15a. PUBLIC FINANCE.

ECONOMICS 140b. CONSUMER ECONOMICS.

ECONOMICS 21b. NATIONAL INCOME ANALYSIS.

ECONOMICS 22. LABOR ECONOMICS AND LABOR PROBLEMS.

ECONOMICS 24b. HISTORY OF ECONOMIC DOCTRINE.

ECONOMICS 25b. PROBLEMS IN PUBLIC FINANCE.

ECONOMICS 26. INDUSTRIAL ORGANIZATION AND GOVERNMENTAL CONTROL.

ECONOMICS 205a. INTERMEDIATE ECONOMIC THEORY.

ECONOMICS 207. INTERNATIONAL ECONOMICS.

ECONOMICS 211b. COMPARATIVE ECONOMIC SYSTEMS.

120b. CORPORATION FINANCE.
Financial structure of modern industry with emphasis on the nature of the business corporation, its financial practices, types of securities, capital structure, financial reorganization, and the problems of internal financial control. Prerequisite: Economics 11. Required of B.S. in B.A. degree candidates. *Three semester hours.* Mr. Bamford.

121b. INTRODUCTION TO INVESTMENTS.
Principles underlying investment analysis and policy; salient characteristics of governmental and corporate securities; policies of investment companies and investing institutions, relation of investment policy to money markets and business fluctuations; security price-making forces, construction of personal investment program and exchange operation. Prerequisite: B.A. 120b. *Three semester hours.* Mr. Bamford.

Management and Personnel Administration

170b. PRINCIPLES OF MANAGEMENT.
The principles disclosed through a study of planning, organizing, directing, assembling resources and controlling which apply equally to all fields of administration. Required of B.S. in B.A. degree candidates. *Three semester hours.* Mr. Bamford.

172a. INDUSTRIAL MANAGEMENT. Not offered, 1965-66.
A survey of the techniques of executive control of manufacturing operations with special reference to such fields as specialization of labor, expansion, control of factors of production and internal organization. *Three semester hours.*

176a. PRODUCTION MANAGEMENT: ANALYSIS. Not offered, 1965-66.
The problems of management in production are analyzed and the use of modern managerial decision-making processes are employed. Prerequisite: B.A. 170b. *Three semester hours.*

182b. INTRODUCTION TO PERSONNEL MANAGEMENT.

184a. MANAGEMENT-LABOR RELATIONS.
Management-employee relationships with special reference to union and management bargaining. Opportunity for development of perspective and judgment regarding problems of management in shop industrial situations and labor relations law. Discussion and case methods are employed. Prerequisite: Economics 11. *Three semester hours.*
Mr. Melder.

191. INTRODUCTION TO QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS.
Not offered, 1965-66.
Some applications of the notions of probability and utility to the making of business decisions under conditions of certainty and uncertainty. *Three semester hours each semester.*

271. MANAGEMENT: DECISION-MAKING.
Designed to describe quantitative methods which are useful in business decision-making, the course develops quantitative models and techniques of application. Prerequisite: B.A. 170b. *Three semester hours each semester.* Mr. Bamford.

272. MANAGEMENT POLICIES. Not offered, 1965-66.
Actual problems of representative business concerns based on specific case studies. Administrative coordination, business research, business policies, development of master plans and operating budgets, measurement of administrative effectiveness. Prerequisite: B.A. 172a. *Three semester hours each semester.*

273a. THE FINANCE FUNCTION IN MANAGEMENT. Not offered, 1965-66.
The tools of financial analysis are developed and applied to the pertinent areas of

planning, control and decision-making. The finance function in relation to other management functions will be emphasized. Prerequisite: B.A. 100 and B.A. 170b. *Three semester hours.*

275a. ORGANIZATION THEORY.
Basic principles of organization with reference to promotion, formal and informal organization, departmentalization, line-staff relationships, decentralization and centralization, communication and the organization's bargaining relations with other organizations. Prerequisite: B.A. 170b. *Three semester hours.* Mr. Bamford.

276b. MANAGERIAL ECONOMICS.
Economic concepts are analyzed and evaluated in terms of their applicability to the development of business policies. The criteria of usefulness are consistency of thought and measurability of the variables under consideration. Prerequisite: Economics 11. *Three semester hours.* Mr. Bamford

290. ANALYSIS OF BUSINESS PROBLEMS.
The course is designed to integrate principles covered in specialized Business Administration courses bringing business as a whole and its economic problems into perspective. Required of all seniors in the Business Administration program. Indivisible course. *Three semester hours each semester.* Mr. Balko.

Marketing

150a. PRINCIPLES OF MARKETING.
The efficiency, social implications and public control of the activities and practices of business institutions in effecting a flow of tangible commodities between producer and consumer. Required of B.S. in B.A. degree candidates. *Three semester hours.* Mr. Balko.

152b. ADVERTISING MANAGEMENT. Not offered, 1965-66.
Advertising as a tool of marketing, economic functions of advertising, advertising research, media selection, advertising organizations and testing. *Three semester hours.*

154b. RETAILING PRINCIPLES. Not offered, 1965-66.
The retailer in our economy, the store and its organizations, aspects of buying and selling, operating activities and personnel, and retail control. Offered in alternate years. *Three semester hours.*

252a. MARKETING RESEARCH. Not offered, 1965-66.
Problems faced by business executives in marketing and the ways in which methods of scientific business research can be utilized for their solution. Prerequisites: Economics 11 and B.A. 160, or the equivalent. Offered in alternate years. *Three semester hours.*

253b. SALES FORECASTING. Not offered, 1965-66.
Application of statistical procedure to the problems of predicting market demand and sales of the individual firm. Prerequisites: Economics 11 and B.A. 160, or the equivalent. Offered in alternate years. *Three semester hours.*

254b. SALES MANAGEMENT.
The organization and direction of the efforts of a sales force, involving the establishment of a sales plan, placing the sales department in the company organization, formulating

sales policies, organizing the sales department, recruiting, training, equipping, motivating and compensating salesmen, and measuring their performance. Prerequisites: B.A. 150a and B.A. 170b or their equivalent. *Three semester hours.* Mr. Balko.

255a. Marketing Policies.
Analysis of how competition, demand, cost, distribution structure and legislation affect marketing decisions of the individual company in regard to products, brands, channels of distribution, selling, advertising, sales promotion and prices. Prerequisites: Economics 11 and B.A. 150a or their equivalent. *Three semester hours.* Mr. Balko.

Statistics

160. Business Statistics. ✓
Statistical methods and techniques applied to data drawn from the business community. Includes sampling, statistical inference, estimation and decision-making, correlation—linear, multiple and curvilinear, analysis of time series and index numbers. Prerequisite: Mathematics 11. Required of B.S. in B.A. degree candidates. *Three semester hours each semester.* Mr. Hargest and Mr. Sargent.

Honors

199b. Junior Honors Program.
Guided study for juniors planning to take B.A. 299 in their senior year. *Three semester hours.* Staff.

299. Senior Honors Program.
Independent study of an approved topic for candidates for honors in accounting, management or marketing. Prerequisite: B.A. 199b. *Three semester hours each semester.* Staff.

Candidates for honors in economics should register for Economics 280b and Economics 28.

Chemistry

DEPARTMENT FACULTY

Thomas T. Sugihara, Ph.D., *Professor of Chemistry, Department Chairman*
Gerson Kegeles, Ph.D., *Professor of Chemistry*
Eugene L. Hess, Ph.D., *Professor (affiliate) of Chemistry*
Edward N. Trachtenberg, Ph.D., *Associate Professor of Chemistry*
Allan M. Zwickel, Ph.D., *Associate Professor of Chemistry*
Karen L. Erickson, Ph.D., *Assistant Professor of Chemistry*
Wen-Yang Wen, Ph.D., *Assistant Professor of Chemistry*

UNDERGRADUATE PROGRAM

In offering a variety of introductory courses in the major branches of modern chemistry, the department seeks to satisfy the needs and desires of (1) those interested in pursuing a career in chemistry, (2) those in related science areas, the proper understanding of which requires a background in chemistry, and (3) the non-scientists who want some knowledge of chemistry as part of their liberal education. In addition to these courses, a large number of more specialized subjects are treated in advanced courses.

The requirements for a major are Chemistry 13 with either 103 or 113a, 113b, 14a, 19 and 290a; Physics 11 and Mathematics 12; and three one-semester elective courses of which one must be in chemistry and the other two in mathematics beyond Mathematics 12, in physics beyond Physics 11 or in biology. These requirements must be met starting with the class of 1968; earlier classes require Chemistry 11, 13, 14a, 19, 290a, two semesters of chemistry elective courses, Physics 11 and Mathematics 12.

Majors are urged to take additional courses in mathematics and at least two years of German. Those who intend to do graduate work in chemistry are further advised to acquire a reading knowledge of either French or Russian.

An entering student with a sound background in chemistry is encouraged to take a placement examination given at the beginning of the academic year. Satisfactory performance on this examination can satisfy the Chemistry 11 prerequisite for Chemistry 13. This will permit completion of the requirements for the major no later than the junior and in some cases the sophomore year, leaving the student's senior year open for more sophisticated pursuits. Among these are the honors program and an Undergraduate Research Participation Program sponsored by the National Science Foundation. The latter program is also open to anyone who has completed his freshman year; for further information, consult the program director, Mr. Trachtenberg.

GRADUATE PROGRAM

The department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy with specialization in various fields of chemistry and in chemical physics. Entering students must take placement examinations in the basic areas of undergraduate instruction; these examinations are used solely for the purpose of arriving at a satisfactory program of courses. Beginning with graduate students entering in 1965, up to one year's equivalent of teaching apprenticeship will be required of all candidates for advanced degrees.

The requirements for the Master's degree are essentially those of the University, q.v. The course requirements for the Ph.D. are as follows:

1. All students must demonstrate satisfactory performance (B– or better) in Chemistry 230a, 322a, 340b and 379b. Students specializing in organic chemistry may substitute 290a for 340b.
2. All students must demonstrate satisfactory performance (B– or better) in at least two of the following courses: Chemistry 212a, 242b, 280b, 321b, 323b, 333b, 361b and 369a.
3. Additional courses may be suggested by the student's research supervisor.

Qualifying and preliminary examinations must be passed, and the University language requirement must be met. Students not satisfying the University requirement in German but requiring it for their research may be asked to satisfy the department as to their proficiency in reading scientific German. For further details on formal requirements consult the appropriate departmental publications.

The doctoral program in chemical physics is jointly administered by the Departments of Chemistry and Physics. It differs from the above in that placement examinations are not required, physics requirements are substituted for some of the chemistry requirements and research is carried out in the Department of Physics.

Graduate scholarships, teaching assistantships, research fellowships and NSF and NASA traineeships are available. Further information on these awards may be obtained from the department chairman.

COURSES

11. General Chemistry.

Systematic study of the elements and their principal compounds and the fundamental laws and theories of chemistry. Three lectures and three laboratory hours per week. Laboratory fee. Divisible with consent of the instructor. *Four semester hours per semester* Mr. Zwickel, Mr. Wen.

13. Organic Chemistry.

Three lectures per week. Chemistry 103 or 113a must be taken concurrently. Prerequisite: a grade of C— or better in Chemistry 11. Divisible with consent of the instructor. *Three semester hours per semester.* Mr. Trachtenberg.

14a. Analytical Chemistry.

Theoretical and descriptive inorganic chemistry. Laboratory synthesis and analysis of simple inorganic systems. Three lectures per week for the first 10 weeks of the semester (none thereafter) and six laboratory hours per week throughout the semester. Laboratory fee. Prerequisite: Chemistry 11. *Four semester hours.* Mr. Zwickel.

19. Physical Chemistry.

Principles of physical chemistry applied to gases, liquids, solutions, crystalline solids; chemical thermodynamics, homogeneous and heterogeneous equilibria, electrolytic conductance and transference, electromotive force, reaction kinetics, colloids. Three lectures and three laboratory hours per week. Laboratory fee. Prerequisites: Physics 11, Mathematics 12, a grade of C or better in Chemistry 11 or 13; Chemistry 13 and 14a may be taken concurrently. Additional course work in mathematics is recommended. *Four semester hours each semester.* Mr. Kegeles.

103. Organic Chemistry Laboratory.

Laboratory study of the preparation and properties of important organic compounds. Three laboratory hours per week. Laboratory fee. Must be taken concurrently with Chemistry 13. Divisible with consent of the instructor. *One semester hour per semester.* Miss Erickson.

113a. Accelerated Organic Chemistry Laboratory.

Essentially identical to Chemistry 103. One hour conference and seven hours of laboratory per week. Laboratory fee. Must be taken concurrently with Chemistry 13. Strongly recommended for Chemistry Majors; optional for others. *Two semester hours.* Miss Erickson.

113b. Qualitative Organic Analysis.

Laboratory study of the identification of organic compounds by both classical and modern instrumental techniques. Laboratory fee. Prerequisites: Chemistry 113a or consent of the instructor, and Chemistry 13 concurrently or previously. One hour conference and 7 hours of laboratory per week. Required for Chemistry Majors. *Three semester hours.* Miss Erickson.

212a. Inorganic Chemistry.

Theoretical and descriptive inorganic chemistry. Not open to those who have taken 14a after 1962. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Zwickel.

214. SPECIAL PROJECTS.
Individual work of an investigative nature which may include a search of chemical literature as well as laboratory work. *Three semester hours each semester.* Staff.

215. HONORS COURSE.
Primarily for majors seeking departmental honors in chemistry. A laboratory research project. *Three semester hours each semester.* Staff.

230a. PHYSICAL ORGANIC CHEMISTRY.
Fundamentals of organic chemistry. Molecular structure, acidity and basicity, kinetics and mechanisms with emphasis on the most recent advances in organic chemical theory. Prerequisites: Chemistry 13 and 19 or consent of the instructor. *Three semester hours.* Mr. Trachtenberg.

242b. NUCLEAR AND RADIOCHEMISTRY.
Fundamentals of nuclear science; production, isolation, identification and measurement of radioactive atoms. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Sugihara.

280b. INSTRUMENTAL METHODS.
The principles and application of modern instrumental techniques to the separation and analysis of mixtures and for the characterization of pure compounds. Two lectures and six laboratory hours per week. Laboratory fee. Prerequisite: consent of the instructor. *Three semester hours.* Staff.

290a. ADVANCED PHYSICAL CHEMISTRY.
Elementary quantum-mechanical treatment of the structure of nuclei, atoms and molecules. Statistical mechanics of simple systems. Three lectures per week. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Sugihara.

300. RESEARCH.
Three to fifteen semester hours each semester. Staff.

321b. COLLOID CHEMISTRY. Not offered, 1965-66.
Osmotic and sedimentation equilibrium. Diffusion, sedimentation velocity, countercurrent distribution and chromatographic theory. Kinetics of rapid macromolecular interactions. Offered in alternate years. *Three semester hours.* Mr. Kegeles.

322a. THERMODYNAMICS.
Applications of classical thermodynamics to chemical systems. *Three semester hours.* Mr. Kegeles.

323b. STATISTICAL MECHANICS.
Statistical mechanical analogs of thermodynamic functions and their application to chemical systems. Prerequisites: Chemistry 290a and 322a, or their equivalents. *Three semester hours.* Mr. Wen.

324b. REFRACTOMETRIC TECHNIQUES.
Applications of refractometric and interferometric methods to the study of optically inhomogeneous media. Methodology employed in electrophoresis, ultracentrifugation, diffusion and chromatography. Offered in alternate years. *Three semester hours.* Mr. Kegeles.

331b. ADVANCED PHYSICAL ORGANIC CHEMISTRY.
Modern interpretation of organic reaction mechanisms including molecular rearrangements, chain reactions and other reactions not covered in Chemistry 230a. Prerequisite: Chemistry 230a. Offered in alternate years. *Three semester hours.* Mr. Trachtenberg.

333b. SYNTHETIC ORGANIC CHEMISTRY. Not offered, 1965-66.
Lectures on synthesis of organic molecules emphasizing scope and limitations of general methods, mechanism and stereochemistry. Synthesis of carbon to carbon bonds, oxidation and reduction. Prerequisite: Chemistry 230a, or consent of the instructor. Offered in alternate years. *Three semester hours.* Mr. Trachtenberg.

340b. QUANTUM CHEMISTRY.
Elementary quantum mechanics of simple systems, properties of wave functions, approximation methods for complex systems. *Three semester hours.* Mr. Sugihara.

343a. THEORIES OF NUCLEAR-REACTION MECHANISMS.
Current theories and models of mechanisms of nuclear reactions at medium and high energies. Prerequisite: Chemistry 242b. *Three semester hours.* Mr. Sugihara.

350. SEMINAR.
Reports on research work and discussions of recently published work. No credit.
Guest Lecturers, Staff and Graduate Students.

360b. COORDINATION COMPOUNDS. Not offered, 1965-66.
Chemical and physical properties of complexes, including theories of coordination, stereoisomerism, reaction mechanisms and solution stabilities. Offered in alternate years. *Three semester hours.* Mr. Zwickel.

361b. MOLECULAR STRUCTURE.
Physical methods relevant to the determination of the structure of molecules (x-rays, electrom diffraction, nuclear magnetic, resonance, electronic properties, etc.). Prerequisite: consent of the instructor. Offered in alternate years. *Three semester hours.*
Mr. Zwickel.

369a. ELECTRONIC SPECTROSCOPY.
Introduction to the studies of ultraviolet and visible absorption spectra as well as emission spectra. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Wen.

379b. SPECIAL TOPICS.
Research seminars; reports by graduate students. *Three semester hours.* Staff.

380. RESEARCH CONFERENCE.
Informal reports of research work being done in the laboratory. No credit.
Staff and Graduate Students.

Classics

DEPARTMENT FACULTY

Claude W. Barlow, Ph.D., *Professor of Classics*

UNDERGRADUATE PROGRAM

Undergraduate courses are provided for the acquisition of a reading knowledge of Greek and Latin and for the study of literary masterpieces in those original languages. Courses also are offered for the candidate who wishes to major in Latin. The major should include Latin 13 during the freshman year, three advanced Latin courses and three courses in related fields to be approved by the department. Other courses, given entirely in English, deal with phases of the Greek and Roman civilizations. Students who wish to elect Elementary Greek or Intermediate Latin should consult the department as far in advance as possible since these courses are not offered every year.

COURSES

Greek

11. Elementary Greek. Not offered, 1965-66.
Greek grammar through forms, syntax, vocabulary and reading; selections from Xenophon's *Anabasis* or other simple prose. Open to freshmen. Indivisible course. *Three semester hours each semester.*

12. Attic Greek Prose; Homer's *Iliad.*
Prerequisite: Greek 11. *Three semester hours each semester.* Mr. Barlow.

13. Greek Drama. Not offered, 1965-66.
Prerequisite: Greek 12 or the equivalent. *Three semester hours each semester.*

123a. Greek Civilization.
Lectures, readings and discussion on the history, literature, art, religion and government of ancient Greece, with emphasis on the elements which have contributed most to Western civilization. For students who entered Clark before September, 1964, Greek 123a may be counted with Latin 123b to fulfill the general degree requirement in art and music (Group D) but not in fulfillment of the requirement in foreign language. Offered in alternate years. *Three semester hours.* Mr. Barlow.

Latin

11. Elementary Latin. Not offered, 1965-66.
Three semester hours each semester.

12. Intermediate Latin; Virgil's *Aeneid* Not offered, 1965-66.
This course will begin with an intensive review of forms, syntax and vocabulary for at least seven weeks. Prerequisite: two years of secondary school Latin. Offered in alternate years. *Three semester hours each semester.*

13. Catullus and Plautus; Terence and Horace.
Prerequisite: Latin 12 or three years of secondary school Latin. *Three semester hours each semester.* Mr. Barlow.

15. Roman Historians; Roman Satire. Not offered, 1965-66.
Prerequisite: Latin 13. *Three semester hours each semester.*

17. Roman Philosophers; Poets of the Augustan Age.
Three semester hours each semester. Mr. Barlow.

19. Survey of Latin Literature. Not offered, 1965-66.
Three semester hours each semester.

123b. ROMAN CIVILIZATION.
Lectures, readings and discussion on the history, literature, philosophy, art, religion, law and government of ancient Rome, with emphasis on the transmission of Greek civilization and the condition of the Roman Empire during the early years of Christianity. For students who entered Clark before September, 1964, Latin 123b may be counted with Greek 123a to fulfill the general degree requirement in art and music (Group D) but not in fulfillment of the requirement in foreign language. Given in English. Open to freshmen. Offered in alternate years. *Three semester hours.* Mr. Barlow.

Comparative Literature

18. LITERATURE AND THE NATURE OF MAN.
The course is designed to serve the general student by providing him with an opportunity to investigate ideas held by outstanding literary artists of the Western World concerning the nature of man and his relation to the universe. The works are also to be studied as representatives of the cultures of which they are products. The course is planned not only to introduce the student to a body of knowledge and experience held in common by educated men and women in our society but also to help him to clarify his thinking concerning certain basic problems and to develop attitudes that are both humane and creative. The subject matter undertaken includes Sophocles' *Oedipus the King,* the *Book of Job,* the *Inferno* from Dante's *Divine Comedy,* Shakespeare's *King Lear,* Milton's *Paradise Lost,* Moliere's *Misanthrope,* Goethe's *Faust,* Part I, and selected poems of T. S. Eliot. All non-English works are read in translation. Meets the requirement for a third semester of English in addition to English 11 but not the requirement in Fine Arts. Classified as a Group C course. Open to sophomores, juniors and seniors with the consent of the instructors. Successful completion of the first semester is normally required for admission to the second semester. *Three semester hours each semester.*
Mr. Anderson, Mr. King.

ENGLISH 127b. MODERN CONTINENTAL DRAMA.
A survey of the drama of continental Europe, excluding England, from Ibsen to the drama of the absurd. Special emphasis will be given to the major figures, including Ibsen, Strindberg, Chekhov, Pirandello and Brecht. Offered in alternate years. *Three semester hours.* Mr. Schroeder.

ENGLISH 145b. MODERN CONTINENTAL FICTION. Not offered, 1965-66.
Selected masterpieces by modern European novelists are studied closely in English translation, with attention to their philosophical, moral, social, political and psychological insights as well as to their literary forms. Writers considered include Flaubert, Turgenev, Tolstoy, Dostoyevsky, Gide, Proust, Mann, Kafka and Camus. Students are encouraged to read in the original languages when possible. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Beard.

GERMAN 170a. THE FAUST THEME IN LITERATURE. Not offered, 1965-66.
See description under German. Mr. Arndt.

German 172. THE GERMAN CONTRIBUTION TO WORLD LITERATURE.
See description under German. Mr. Arndt.

RUSSIAN 179. SURVEY OF RUSSIAN LITERATURE.
See description under Russian. Mrs. Sorokin.

RUSSIAN 180. SOVIET LITERATURE. Not offered, 1965-66.
See description under Russian. Mrs. Sorokin.

Economics

DEPARTMENT FACULTY

Howard W. Nicholson, Ph.D., *Professor of Economics, Department Chairman**
James A. Maxwell, Ph.D., *Professor of Economics**
F. Eugene Melder, Ph.D., *Professor of Economics*
George E. Hargest, M.B.A., *Associate Professor of Economics and Business Administration***
Roger C. Van Tassel, Ph.D., *Associate Professor of Economics*
Donald Savage, M.A., *Assistant Professor of Economics*
Sang C. Suh, M.A., *Assistant Professor of Economics*
George A. Balko, Jr., M.B.A., *Assistant Professor of Economics and Business Administration****
Frederick E. Bamford, M.B.A., *Assistant Professor of Economics and Business Administration*
Rogers P. Johnson, M.A., *Lecturer in Sociology*
Frederick W. Bell, Ph.D., *Lecturer in Economics*
Albert J. Sargent, M.B.A., *Lecturer in Business Administration*

*On Leave, 1965-66.
**On Leave, first semester, 1965-66.
***On Leave, second semester, 1965-66.

UNDERGRADUATE PROGRAM

The first aim of the department, in its undergraduate courses, is to give the student a comprehensive grasp of the underlying principles and functions of economic institutions, and to develop habits of systematic and unbiased thought about these institutions. Some of the courses, however, contribute to the student's preparation for a business or professional career (Economics 13, 15, 22, 26, etc.) and are specifically recommended to students who are candidates for the degree of Bachelor of Science in Business Administration. Conversely, some students majoring in economics may be advised to elect certain courses in Business Administration which are credited toward the degree of Bachelor of Arts (Business Administration 100, 102, 120b, 121b, 150a, 160, 170b, 182b, 184a, 252a, 255b, 290).

Students who have an interest in Business Administration but prefer a program which is less intensive than that required of candidates for the degree of Bachelor of Science in Business Administration may enroll as candidates for the degree of Bachelor of Arts with a major in economics. Such students should take the normal college program. In the second year, they should elect Economics 11 and Business Administration 100. In the third and fourth years, they should select courses in economics and in business administration in consultation with their advisers.

Economics 11 is a prerequisite to all other courses in economics. Courses taken outside the department in partial fulfillment of the major requirement should be selected, subject to departmental approval, so as to provide a unified program centering about the student's major interest. Majors in economics will ordinarily be required to take Economics 105a, Intermediate Economic Theory, and Economics 105b, National Income Analysis. They are also encouraged to take work in Statistical Method and Economics 13a, Money and Banking.

Candidates for departmental honors will engage in a program of independent study consisting of reading and research designed in part to give them specialized training in the fields of their major interest and in part to supplement formal courses. Ordinarily a candidate will begin his honors work in the second semester of the junior year by enrolling in the Honors Seminar.

In making elections, students should bear in mind that some advanced courses are offered only in alternate years.

GRADUATE PROGRAM

The University offers facilities for graduate study and research leading to the Master of Arts degree and Doctor of Philosophy degree in Economics for a small number of selected students.

The work of the Department of Economics is closely integrated with that in Business Administration, History, Government, International Relations, Mathematics, and Geography; graduate students may take related courses in these subjects.

Scholarships and fellowships are available for a limited number of well-prepared students. These appointments exempt their holders from tuition fees and some carry stipends in varying amounts. Several teaching assistantships are also awarded which enable graduate students to gain experience in undergraduate instruction. These carry remission of tuition and a cash payment, up to $2,000 for part-time work (one-half).

Master of Arts Program

The program for the degree of Master of Arts is worked out individually with each student.

An academic year of full-time study in residence, or its strict equivalent in summer sessions and part-time study, is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at the University under the immediate personal supervision of at least one member of the University faculty. A program of full-time study is equivalent to twenty-four semester hours.

A student should discuss his plans with the department chairman on or before Registration Day and secure approval of his course program. Each M.A. candidate is required to take a course in Theory, Intermediate or Advanced, depending upon his background. In addition, each first year graduate student is required to enroll in the Department Seminar, which meets for approximately 1½ hours a week throughout the year. The Seminar is equivalent in credit to a semester or half course. Students present papers (at least one each semester) before their fellow students and members of the staff. Several outside speakers also address the group.

A Master's thesis will be written on a topic in the field of the student's special interest under the supervision of a member of the Department. Each student should be sure to enroll for a thesis course at the beginning of his program. The thesis course is equivalent to six semester hours. This, added to the twenty-four semester hours of course credit, gives the student the necessary thirty semester hours of credit for the M.A. degree.

Doctor of Philosophy Program

For the degree of Doctor of Philosophy in Economics, each student must choose five fields of study to be agreed upon as early as possible in the first year of residence beyond the M.A. A range of courses is offered in cycles of two or three years. Individual work with instructors constitutes a considerable part of the program. Also, some teaching experience or apprenticeship teaching will be a required part of graduate training.

Two full academic years of graduate work, or its equivalent in part-time work, is necessary for admission to Ph.D. candidacy. One of these years must be spent in residence at Clark University. In residence is broadly defined as work done at Clark University under the immediate personal supervision of at least one member of the University faculty. For the degree of Doctor of Philosophy, twenty-four semester hours is a normal full-time program.

All Ph.D. candidates will be required to demonstrate proficiency in two fields, Economic Theory and Quantitative Analysis. In addition, Ph.D. candidates will be required to demonstrate a thorough knowledge of three of the following fields: Money and Banking, Public Finance, Industrial Organization and Government Control, International Trade, Labor, Economic Growth *or* one field selected from related subjects. In demonstration of proficiency in the field of Economic Theory, candidates will be expected to be familiar with the History of Economic Doctrine.

Each student should decide, with the advice and approval of the department chairman, what he will offer for his language requirement. A prospective candidate must pass a University language requirement which is a reading examination in French, German, Russian or Spanish.

After completing his course work and passing his language requirement, a student may take his written examinations. The Department requires each student to pass three-hour written examinations in two of his fields. When such written examinations have been passed and all language and other requirements have been completed, an oral examination (called the Preliminary Oral) in two of the candidate's fields will be held. The examining committee will consist of the members of the Department and possibly a member of the Graduate Board and another Department. In the preliminary examination, the student is expected to demonstrate scholarly ability by:

(a) Such discussion of the subject matter and the major problems of each field as to show not only knowledge of content but capacity for interpretation, and

(b) Appreciation of the kinds of primary sources available and serviceable knowledge of reference works and the principal secondary sources.

The preliminary oral should, if possible, be taken while the student is still in residence, and in no case be delayed long thereafter.

Admission to candidacy should follow closely upon the passing of the preliminary examinations, and active research for the dissertation should begin as soon as practicable.

The fifth or reserve field is the one in which the student writes his dissertation. The dissertation must be a real contribution to knowledge, based upon independent research, convincingly presented, and acceptably written.

The final oral examination will cover the dissertation and the special field in which it lies. In this examination, the student is expected to display thorough and expert knowledge of his subject, including acquaintance with primary sources and monographs, as well as general bibliography.

COURSES IN ECONOMICS

11. PRINCIPLES OF ECONOMICS.
Open to freshmen. *Three semester hours each semester.* Mr. Van Tassel.

105a. INTERMEDIATE ECONOMIC THEORY.
An analysis of contemporary price theory. *Three semester hours.* Mr. Savage.

105b. NATIONAL INCOME ANALYSIS.
A study of contemporary income theory. *Three semester hours.* Mr. Savage.

13a. MONEY AND BANKING.
Three semester hours. Mr. Savage.

140b. CONSUMER ECONOMICS. Not offered, 1965-66.
Theories of consumer choice making are analyzed. Rational planning and economy in important fields of consumers' decisions are explored. The role of government and private agencies in consumer education and protection are reviewed. *Three semester hours.*

15a. PUBLIC FINANCE.
The principles of governmental expenditures, revenues, and debts, with particular reference to the United States. *Three semester hours.* Mr. Maxwell.

BUSINESS ADMINISTRATION 100. INTRODUCTION TO MANAGERIAL ACCOUNTING.

BUSINESS ADMINISTRATION 102. INTERMEDIATE ACCOUNTING.

BUSINESS ADMINISTRATION 120b. CORPORATION FINANCE.

BUSINESS ADMINISTRATION 121b. INTRODUCTION TO INVESTMENTS.

BUSINESS ADMINISTRATION 150a. PRINCIPLES OF MARKETING.

BUSINESS ADMINISTRATION 160. BUSINESS STATISTICS.

BUSINESS ADMINISTRATION 170b. PRINCIPLES OF MANAGEMENT.

BUSINESS ADMINISTRATION 182b. INTRODUCTION TO PERSONNEL MANAGEMENT.

BUSINESS ADMINISTRATION 184a. MANAGEMENT-LABOR RELATIONS.

20a. HISTORICAL ANALYSIS OF ECONOMIC GROWTH.
Case studies in economic history. How modern economic growth was started in currently advanced countries and how the economic structure was changed in the process of growth. *Three semester hours.* Mr. Suh.

20b. ECONOMIC POLICIES FOR DEVELOPMENT.
Domestic and International Trade Policies for Development. Theories and problems of economic planning. *Three semester hours.* Mr. Suh.

200a. ECONOMIC GROWTH.
Analysis of economic growth theory, cultural, social and political factors making for growth. Factors within underdeveloped countries which hinder economic development will be examined. *Three semester hours.* Mr. Melder.

200b. PROBLEMS IN ECONOMIC GROWTH.
The course examines some economic and social theories pertinent to economic growth. It then considers policy problems in two areas: acceleration of development rates in poorer countries and maintenance of growth in richer countries. Class members make studies of topics related to growth problems. *Three semester hours.* Mr. Melder.

201a. ECONOMIC THEORY—MICRO-ECONOMICS.
Analysis of consumer behavior; the theory of production; equilibrium of the firm and the industry; market structures, the pricing of factors of production; allocation of resources in a market economy; general equilibrium analysis; and introduction to welfare economics. *Three semester hours.* Mr. Suh.

201b. ECONOMIC THEORY—MACRO-ECONOMICS.
Income and employment theory; the Keynesian aggregative system and post-Keynesian systems; static equilibrium theory; an introduction to macrodynamics. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Savage.

207a. INTERNATIONAL TRADE THEORY.
Emphasis is put on international value determination and the mechanisms for adjusting international disequilibrium. *Three semester hours.* Mr. Van Tassel.

207b. INTERNATIONAL ECONOMIC POLICY.
A review of the rise of the world trading economy, techniques of commercial policy, and major questions of international economic policy. Prerequisite: Economics 207a. *Three semester hours.* Mr. Van Tassel.

210a. ECONOMIC AND SOCIAL REFORM. Not offered, 1965-66.
The development of economic institutions by society in its attempt to solve basic economic problems by free enterprise or planning. Attention is given to the contemporary industrial organization of the American economy. *Three semester hours.*

211b. COMPARATIVE ECONOMIC SYSTEMS. Not offered, 1964-65.
An analysis of contemporary or recently industrialized economic systems such as capitalism, socialism, and fascism, followed by a consideration of these systems as currently or recently found to exist in specific nations. *Three semester hours.*

213a. MONEY AND BANKING THEORY.
The process of money creation and money flows; an analysis of the monetary and banking system, money and capital markets, and the role of financial intermediaries; analysis of monetary policy instruments and their effectiveness; competing objectives of monetary policy; relation of these objectives to fiscal policy, debt management, and economic growth. *Three semester hours.* Mr. Savage.

22a. LABOR ECONOMICS.
A survey of the nature of labor economics and labor problems, including the several approaches of organized workers and employers to these problems. *Three semester hours.* Mr. Melder.

22b. LABOR ECONOMICS.
Applications of economic analysis to wages, unemployment, and related issues. The approach of government to labor force problems, including industrial relations and social insurance. *Three semester hours.* Mr. Melder.

23b. Problems in Money and Banking.
Central banks, particularly the Federal Reserve System; monetary standards; theories of foreign exchange; monetary policy in the United States. Prerequisite: Economics 13a or its equivalent. *Three semester hours.* Mr. Savage.

24b. History of Economic Doctrine.
After a quick survey of ancient writers, attention will be given to mercantilism and the doctrinal reaction from it as expressed by the Physiocrats and the Classical economists. *Three semester hours.* Mr. Melder.

25b. Problems in Public Finance.
The Employment Act of 1946 is discussed and methods by which it may be implemented. Other questions examined are: reform of the federal taxation, federal debt policy, the capital budget, federal budgetary procedure. Prerequisite: Economics 15a or its equivalent. *Three semester hours.*

26a. Industrial Organization and Government Control. Not offered, 1965-66.
Examination of the various forms of governmental regulation applied to our present industrial organization. Appraisal of existing governmental controls in specific industrial situations. *Three semester hours.*

26b. Problems in Industrial Organization. Not offered, 1965-66.
Problems of market organization, behavior, and public policy. Conducted on a seminar basis. *Three semester hours.*

27. Introduction to Mathematical Economics.
An introductory survey of the use of mathematical methods in economic analysis. Special attention is given to the mathematical framework of the theory of price determination. Prerequisite: consent of the instructor. *Three semester hours each semester.* Mr. Suh.

28. Senior Honors.
Three semester hours each semester. Staff.

270b. Mathematical Economics.
The course begins with the study of static micro economics including linear and nonlinear programming, and input-output analysis. Next will be considered topics in general equilibrium, dynamic micro-theory and growth models. Some knowledge of calculus and linear algebra are assumed in the course. *Three semester hours.* Mr. Suh.

280b. Junior Honors Seminar.
Designed to assist honors candidates in integration of the field. Prerequisite for honors. *Three semester hours.* Staff.

29b. Statistical Method. Not offered, 1965-66.
The nature of statistics; statistical description; statistical inference; special topics. Special emphasis will be given to theoretical and observed frequency distributions, elements of probability theory, problems of sample design and interpretation, decision theory, time series, index numbers, and measures of association and correlation. *Three semester hours.* Mr. Nicholson.

Business Administration 252. Marketing Research.

Business Administration 255b. Marketing Policies.

Business Administration 290. Analysis of Business Problems.

39a. Economic Theory. Not offered, 1965-66.
Analysis of the theories of representative economists. Most attention is given to Marshall, Chamberlin, Keynes. *Three semester hours.*

311. Seminar.
Three semester hours. Staff.

290a. Introduction to Econometrics.
Introduction to quantitative analysis of economic problems. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Bell.

290b. Problems in Quantitative Economics.
Study of the application of mathematical and statistical techniques to economic problems. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Bell.

300.	Reading	In Economic Growth.	Mr. Medler.
30.	Thesis		
313.	Reading	In Money and Banking.	Mr. Savage.
31.	Thesis		
322.	Reading	In Labor.	Mr. Melder.
32.	Thesis		
324.	Reading	In Marketing.	Mr. Balko.
33.	Thesis		
325.	Reading	In Public Finance and Fiscal Policy.	Mr. Maxwell.
34.	Thesis		
326.	Reading	In Business Organization and Government Control of Industry.	Mr. Nicholson.
35.	Thesis		
327.	Reading	In International Economics.	Mr. Van Tassel.
36.	Thesis		
329.	Reading	In Statistical Methods.	Mr. Nicholson.
37.	Thesis		
334.	Reading	In History of Economic Thought.	Mr. Maxwell.
38.	Thesis		
339.	Reading	In Economic Theory.	Mr. Suh.
320.	Thesis		

Education

DEPARTMENT FACULTY

Vernon Jones, Ph.D., *Professor of Educational Psychology, Department Chairman*

James M. Coffee, Ed.D., *Associate Professor of Education**

*On Leave 1965-1966

Joseph C. Bentley, Ph.D., *Assistant Professor of Education*
Francis X. Russo, Ph.D., *Assistant Professor of Education*
Paul A. Walters, M.D., *Associate Professor (Affiliate) of Educational Psychology*
Theresa F. Cooney, M.Ed., *Lecturer in Education*
M. Evelyn Harriman, A.M. in Ed., *Lecturer in Education*

With the cooperation of Professor Warman of the Graduate School of Geography, Professor Reid of the Department of Romance Languages, Miss Hughes, Dean of Women, and visiting lecturers in special areas.

UNDERGRADUATE PROGRAM

The department encourages all students who may be interested in preparing for teaching to consult with some member of its staff as early in their careers at the University as convenient. The actual election of courses in education, however, should be postponed until the junior year. During the first two years, students should complete as many of the specific requirements for the degree of Bachelor of Arts as possible, and lay a broad foundation of scholarship in the subjects in which they wish to teach.

In conformity with its policy of emphasizing the importance of scholarly background in the preparation of teachers, the department offers its courses as electives, and not as an undergraduate major. This means that the students preparing to teach should elect their majors with careful attention to extensive preparation in areas in which they wish to teach.

Education courses at the undergraduate level are offered primarily with two purposes in mind: (1) to provide introductory instruction to students who plan to teach in public and private secondary schools, and who, in preparation for such teaching, plan a fifth year of study leading to the degree of Master of Arts in Education; and (2) to provide an integrated program of courses and internship teaching to students who, immediately upon graduation, wish to teach in elementary schools.

For students desiring to enter elementary school teaching immediately upon receiving their undergraduate degree, a program has been evolved, in cooperation with the faculty, whereby the election of at least 18 semester hours in education may be possible, including internship teaching in the first semester of the senior year. Since the amount of professional work in education forms so large a percentage of the program of study of such students in the junior and senior years, it is obvious that careful planning must be done throughout the college course to have the desired number of electives available for work in education in these last two years.

GRADUATE PROGRAM

The graduate program in education consists of two parts: a program leading to the degree of Master of Arts in Education and a new program, established in 1962, leading to the degree of Doctor of Education.

Master of Arts in Education: For graduate students wishing to prepare for teaching and/or guidance in public or private secondary or elementary schools, the department offers a fifth-year program leading to the degree of Master of Arts in Education. The program includes additional work in the student's subject-matter field, courses and seminars in education and supervised internship teaching.

Admission Requirements: In addition to the general admission requirements to the Graduate School, a personal interview is usually required by the Department of Education. Since scholarships are usually not available for the first semester to students applying for the Master of Arts in Education as a terminal program, the department is liberal in its policy concerning the date when applications will be considered.

Programs Available: Four programs leading to the degree of Master of Arts in Education are available:

1. A full-time program for students with a bachelor's degree and strong academic background. Superior students may complete this program in one year. It includes appreciable advanced work in the academic field in which the student plans to teach, and internship teaching as well as graduate courses in education.
2. A program of part-time study for teachers in service.
3. A study-teach program for specially selected applicants involving alternate semesters of full-time study and paid employment as a teacher. This is a two-year program and the teaching is a part of the requirements of all students in this study-teach plan.
4. A study-teach program in cooperation with the Department of Romance Languages, involving instruction in beginning college courses. This is a two-year program in which the student typically receives a Teaching Assistant Scholarship involving remission of tuition and a cash stipend. In this program 20 hours per week are required in supervised teaching in the Department of Romance Languages. In light of the extensive internship teaching experience in this program, the number of courses in education may be reduced to equal that in the subject matter field. The assisting or teaching is a part of the requirements of all students in T.A.S. Program. As part of the study of Romance languages and literature, the departments look with favor on study abroad for at least one summer, but this is not a requirement.

Course Requirements. The student is expected to elect one of the following groups of studies as the field in which he wishes to teach:

(a) Mathematics and natural sciences.
(b) History, geography, and government.
(c) Ancient and modern foreign languages.
(d) English, alone or in combination with some related subject.

Prior to receiving the degree, the candidate must have completed in undergraduate and graduate study combined not less than five year-courses in one of the above groups, or in a combination of groups approved by the Department of Education. At least two semester-courses in a subject-matter field must be taken as a part of the study in residence for the advanced degree and must be passed with a grade of B— or better for graduate credit. In addition to the above requirement in the subject-matter field, eight semester-courses of graduate work in education will normally be required. The program of courses to meet these requirements must be approved in advance by the department. Changes in the proportion of education and subject-matter courses may be made by the department on the basis of the candidate's previous training. Work, additional to the above requirements, either in the subject-matter field or in education, or both, may be required if this seems necessary for the adequate preparation of the candidate.

Internship Teaching. The department provides opportunities for internship teaching under supervision for all graduate students majoring in education. For graduate students of the department who have not had teaching experience, satisfactory work in internship teaching is a requirement for the degree of Master of Arts in Education.

Thesis or Additional Study in Lieu of Thesis. All candidates for the degree of Master of Arts in Education must choose one of the following plans:

(a) Prepare an acceptable thesis or special report.

(b) Elect, in lieu of thesis, two additional semester courses in subject-matter fields (making a total of at least four-semester courses in subject-matter area).

(c) Elect, in lieu of thesis, a double seminar in which intensive work will be required in preparing and presenting reports before fellow graduate students and the staff.

Final oral examination. The passing of a final oral examination will be required of all candidates.

Doctor of Education: The program for the degree of Doctor of Education was established in 1962 and is being organized and developed gradually, with special emphases on educational psychology, guidance and counseling. The requirements for this degree will closely parallel the requirements for the Doctor of Philosophy degree, as outlined in the catalog section on the Graduate School. Applicants for admission to the program will be expected to give evidence of high scholarly achievement, including results of the Graduate Record Examination. In special cases, foreign students may be excused from the Graduate Record Examination requirement.

COURSES

201a. EDUCATIONAL PSYCHOLOGY: CHILD GROWTH AND DEVELOPMENT.
Principles of child development, with special emphasis upon maturation, learning and personality development in the elementary school years. *Three semester hours.*
Mr. Bentley.

210b. PSYCHOLOGICAL APPROACH TO CITIZENSHIP DEVELOPMENT.
A study and evaluation of the theoretical formulations and experimental evidence on the problem of values as they relate to character and citizenship development among children and adolescents. Attention will be given both to activities in the schools and to other institutions and agencies in the community as they relate to values and conduct of youth. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Jones.

215a. INTERNSHIP TEACHING IN THE ELEMENTARY SCHOOL.
An extended period of observation and practice in teaching under supervision in regularly organized classes in elementary school. Each student is assigned to a supervising teacher, under whom he or she works for 180 hours during the semester. The first week of this period is normally devoted to observation; the remainder of the time to teaching, under supervision. Lesson planning, pupil evaluation, and supervision of pupils in nonclass activities are part of the requirements of each student. *Three semester hours.*
Mr. Jones, Mr. Russo, Mrs. Harriman, Mrs. Cooney and Supervising Teachers.

Properly qualified students may elect a half-course seminar in conjunction with Education 215a upon permission of the department. Prerequisite: consent of the department. *Three semester hours.* Mrs. Cooney.

20b. (GEOGRAPHY 200b.) GEOGRAPHY IN EDUCATION.
Geography in the present-day American schools. The course is designed to meet the needs of those expecting to teach geography. *Three semester hours.* Mr. Warman.

27b. PRINCIPLES OF SCHOOL AND RECREATIONAL LEADERSHIP.
The basic concepts and techniques of educational and recreational leadership. Lectures, readings, discussions, and field work. Permission of the instructor required for registration. *Three semester hours.* Miss Hughes.

263a. METHODS AND MATERIALS IN TEACHING OF LANGUAGE ARTS IN THE ELEMENTARY SCHOOL.
Methods and materials in the teaching of the language arts, in the middle grades, with special reference to reading. Particular emphasis will be given to provision for individual differences in teaching, and to the development of independent study skills. Field trips to selected schools will be arranged. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Russo.

260b. CURRICULUM DEVELOPMENT IN ELEMENTARY EDUCATION.
A study of the most essential materials and methods in elementary school instruction. Special attention will be given to the methods of teaching and learning in the social studies and mathematics, with brief units on the methods of cooperating most effectively with special teachers in the arts. Lectures and demonstrations by visiting specialists will be provided on particular topics, and field trips will be arranged for classroom demonstrations of certain principles and procedures. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Russo.

270. (ROMANCE LANGUAGES 270) THE TEACHING OF ROMANCE LANGUAGES.
A practicum course for Teaching Assistant Scholars serving as first-year Interns in the Department of Romance Languages. This course will include a weekly lecture and readings, to provide a basis in the theory of applied linguistics; directed teaching in language courses; and a monthly seminar for discussion of the relations between theory and practice. *Three semester hours each semester.* Mr. Reid and Staff.

271. (ROMANCE LANGUAGES 271) THE TEACHING OF ROMANCE LANGUAGES—ADVANCED.
A continuation of course 270 for second-year Interns. *Three semester hours each semester.* Mr. Reid and Staff.

290b. PHILOSOPHY OF EDUCATION.
The aims, processes and materials of education with special reference to the influence of philosophical ideas on educational problems. *Three semester hours.* Mr. Russo.

301a. EDUCATIONAL PSYCHOLOGY: ADOLESCENT GROWTH AND DEVELOPMENT.
Principles of learning and of personality development at the adolescent level. Major emphasis will be upon implications of normal adolescent growth and development for teaching and guidance. *Three semester hours.* Mr. Jones.

303b. CURRICULUM DEVELOPMENT IN SECONDARY EDUCATION.
The basic objectives, issues, principles and procedures of curriculum organization and

development in secondary schools, including the organization of learning experiences in reference to developmental and subject-matter sequences. *Three semester hours.* Mr. Russo.

305a. EDUCATIONAL SOCIOLOGY. Not offered, 1965-66.
A study of social phenomena and their relationships to education. *Three semester hours.* Mr. Bentley.

307a. PERSONALITY DEVELOPMENT IN TEACHING AND COUNSELING.
The role of personality theory and development in counseling and education with emphasis upon those theories which relate to the counseling process. *Three semester hours.* Mr. Bentley.

307b. SOCIAL BEHAVIOR AND THE DEVELOPMENT OF PERSONALITY.
Psychological, social and cultural bases of personality development as they relate to teaching and counseling. *Three semester hours.*

308a. METHODS AND MATERIALS IN SECONDARY EDUCATION.
Methods and techniques used by the teacher in junior and senior high school teaching, and a survey of materials available. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Russo.

309b. SOCIAL LEARNING IN RELATION TO TEACHING AND COUNSELING.
The purpose of this course is to consider concepts of learning which contribute to an understanding of the development of social behavior. Principles of learning and teaching from the fields of social psychology and sociology will be studied within the context of the social environment. *Three semester hours.* Mr. Coffee.

311a. PRINCIPLES, PRACTICES, AND ORGANIZATION OF GUIDANCE.
A survey of guidance and personnel work. Principles bearing upon guidance and student personnel practices will be developed. Aspects of related fields will be reviewed sufficiently to indicate the scope and content of guidance and personnel work. The problem of organizing and administering a guidance program will form an important part of this course. *Three semester hours.* Mr. Bentley.

312a. GUIDANCE: COUNSELING.
Emphasis in this course will be upon the theory and methodology of counseling and upon the management of typical counseling problems. The diagnosis and referral of behavior disorders and related personality maladjustments will be considered. Case material will be presented and analyzed. (311a must be taken simultaneously or have been taken previously.) Second semester, 1965-66. *Three semester hours.* Mr. Coffee.

312b. GUIDANCE: OCCUPATIONAL INFORMATION AND PLACEMENT.
The first part of this course will contain instruction and training in the use of occupational information in vocational guidance along with a consideration of the psychological and sociological factors related to occupational choice and job satisfaction. The second part will emphasize the organization of the placement service. *Three semester hours.* Mr. Coffee and Mrs. Ball.

314a. TESTS AND EVALUATION.
The methods and problems involved in the evaluation of abilities, interests and achievement of children and youth. Attention will be given both to standardized instruments and to teacher-made tests of achievement. *Three semester hours.* Mr. Jones.

314b. TESTS AND EVALUATION: ADVANCED PROBLEMS.
The measurement and evaluation of aptitudes, attitudes, and personality with attention to the use of such measures in teaching and counseling. *Three semester hours.* Mr. Jones.

315a. INTERNSHIP TEACHING IN THE SECONDARY SCHOOL.
An extensive period of observation and teaching in the field or fields in which the student plans to teach in secondary school. Individual supervision is given by the department and by critic teachers in cooperating schools.

Properly qualified students may elect a half-course seminar in conjunction with Education 315a upon permission of the department. *Three semester hours.*
Mr. Jones, Mr. Russo and Supervising Teachers.

318b. INDIVIDUAL PSYCHOLOGICAL ASSESSMENT IN GUIDANCE AND COUNSELING.
Mr. Bentley and Visiting Specialists.

319a. STATISTICAL METHODS IN EDUCATIONAL EVALUATION AND RESEARCH, I.
Three semester hours. Mr. Jones.

319b. STATISTICAL METHODS IN EDUCATIONAL EVALUATION AND RESEARCH, II.
Three semester hours. Mr. Jones.

322b. PRACTICUM IN GUIDANCE.
Offered in second semester, 1965-1966. *Three semester hours.* Mr. Coffee.

325. ADVANCED PRACTICUM AND SEMINAR IN GUIDANCE AND COUNSELING.
Offered in 1964-1965 and in alternative years. *Three semester hours each semester.*
Mr. Coffee and Visiting Specialists.

331a. MEDICAL PSYCHOLOGY AND COLLEGE COUNSELING.
Offered in first semester, 1965-1966. *Three semester hours.* Mr. Walters.

332a. SEMINAR: CASE STUDIES IN COLLEGE COUNSELING.
Offered in first semester, 1965-1966. *Three semester hours.* Mr. Walters.

350. RESEARCH IN EDUCATION.
Individual direction of students in their research projects. Staff.

380b. DEPARTMENTAL SEMINAR ON CURRENT PROBLEMS.
Six semester hours. Staff and Graduate Students.

English

DEPARTMENT FACULTY

Karl O. E. Anderson, Ph.D., *Professor of English, Department Chairman*
James F. Beard, Jr., Ph.D., *Professor of English*
Charles S. Blinderman, Ph.D., *Associate Professor of English*
William H. Carter, Jr., Ph.D., *Associate Professor of English*
Stanley Sultan, Ph.D., *Associate Professor of English*
Jessie C. Cunningham, A.M., *Assistant Professor of English*
Neil R. Schroeder, Ph.D., *Assistant Professor of English*
Serena S. Hilsinger, Ph.D., *Assistant Professor of English*
Arthur Martin, A.B., *Instructor in English*
John McLaughlin, M.A., *Instructor in English*

UNDERGRADUATE PROGRAM

All freshmen must take English 11 except those exempted from one or both semesters on the basis of the College Entrance Examination Board Advanced Placement Test or the Special Placement Test given by the Department of English. The requirement of a third semester of English may be satisfied by any English course beyond English 11 with the exception of English 12a and 19b.

A major in English consists of a minimum of four English courses beyond English 11 and three related courses, as follows:

1. English 13a and either English 14 or 15. Normally these courses should not be taken by the English major in his senior year.
2. Four half-courses in English from a group of courses open only to juniors and seniors, namely: 101b, 104, 105, 110, 112b, 113, 117, 122b, 129b, 130a, 130b, 146b, and 155b.
3. Related courses: 2 semesters in history, to be selected from the following courses: History 10, History 12b, History 22b, and History 230; 2 semesters in philosophy, preferably Philosophy 12; and one other course approved by the English Department.

The Honors Program in English, which offers an opportunity for extensive independent work during the junior and senior years, is open to qualified students upon application to the department.

Students who expect to do graduate work in English are strongly advised to acquire a reading knowledge of French, German and Latin.

COURSES

11. Composition and Literature.

English 11 aims (1) to improve the student's composition through a review of the principles of good writing, frequent themes, and individual conferences and (2) to enable him, through the techniques of close reading, to comprehend and enjoy literature. Open to freshmen. *Three semester hours each semester.* Staff.

12a. Speech.

A fundamental course in speech, including training and practice in voice production, diction, articulation, and the basic types of speech. Drill sessions and recordings help the student recognize and correct his speech deficiencies. Practice in public speaking includes practical experience in the most common types of speeches. Open to freshmen. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Schroeder.

13a. Introduction to Poetry.

A course introducing the student to a variety of critical approaches to poetry and affording extensive experience in reading, discussing and writing about individual poems. Attention is given to as many as possible of the chief kinds, functions and values of poetry. *Three semester hours.* Mr. Carter.

14. English Novel.

A study of the English novel from its beginning to the end of the nineteenth century. The first semester includes Defoe, Richardson, Fielding, Smollett, Sterne, Jane Austen, and three or four minor novelists. The second semester considers Scott, Thackeray, Dickens, George Eliot, Hardy, Conrad, and three or four minor novelists. Some emphasis is placed on the development of the novel as a literary form. *Three semester hours each semester.* Mrs. Cunningham.

15. ENGLISH DRAMA.
A course in theatrical techniques and the literature of the major periods of drama in the English language. The first semester covers the religious drama of the Middle Ages and the drama of Tudor, Stuart, and Restoration England, including plays by Marlowe, Shakespeare, Jonson, Beaumont and Fletcher, Dryden, Congreve and Wycherley. The second semester covers eighteenth and nineteenth century English drama and the modern drama of England, Ireland and the United States. Included are plays by Sheridan, Goldsmith, Wilde, Shaw, Synge, Yeats, O'Casey and O'Neill. *Three semester hours each semester.*
First semester: Mr. Schroeder.
Second semester: Mr. Sultan.

16a. CREATIVE WRITING.
A course designed to cultivate and guide student work in the short story, the lyric poem, and the informal essay. Class meetings deal largely with important aspects of the art of fiction; published literary works and student manuscripts are discussed. Prerequisite: a one-semester course in literature, which may be taken concurrently. *Three semester hours.* Note: *In 1965-66, English 16a will be offered in second semester.* Mr. Sultan.

16b. CREATIVE WRITING. Not offered, 1965-66.
Open to students who have taken English 16a and to other students who are interested in writing verse. *Three semester hours.* Mr. Sultan.

19b. INTERMEDIATE COMPOSITION.
This course is designed to help students improve their expository writing through the study and application of rhetorical methods. Diction, sentence structure, paragraph integrity, theme organization, logic, semantics, persuasion, the relationship of idea to expression and of expression to audience are among the matters analyzed. *Three semester hours.* Mr. Blinderman.

101a. CHAUCER. Not offered, 1965-66.
After a careful study of the Prologue to the *Canterbury Tales* to acquaint the student with the essentials of Middle English vocabulary, grammar and scansion, most of the *Canterbury Tales* and all of *Troilus and Cressida* are read more rapidly. The emphasis throughout is on Chaucer's literary skill and breadth of vision. Offered in alternate years. *Three semester hours each semester.* Mr. Anderson.

104. MILTON AND THE SEVENTEENTH CENTURY.
The first semester is devoted to a study of seventeenth century English literature exclusive of Milton and the Restoration Drama; that is, metaphysical poets (Donne, Herbert, Vaughan); the seventeenth century lyric (Jonson, Herrick, Crashaw, Marvell); prose works by Bacon, Burton, Browne, Walton, Bunyan, Pepys and Evelyn; and in general, the rise of neo-classicism (Jonson, Hobbes, Dryden). The second semester considers in some detail the works of Milton and the Restoration Drama (Dryden, Etherege, Wycherley, Congreve, Farquhar). Offered in alternate years. *Three semester hours each semester.* Mr. Carter.

105. EIGHTEENTH CENTURY. Not offered, 1965-66.
During the first semester, prose works such as Defoe's *Moll Flanders* and Swift's *Gulliver's*

Travels, plays such as Gay's *Beggar's Opera* and Lillo's *London Merchant,* and the major poems of Pope and Swift are considered. During the second semester, prose works by Boswell and Johnson; novels by Richardson, Fielding, Smollet, Sterne; plays by Fielding, Goldsmith, Sheridan; and poetry by Thomson, Collins, Gray, Burns and Blake are studied. Offered in alternate years. *Three semester hours each semester.* Mr. Carter.

110. VICTORIAN LITERATURE.
A survey of Victorian literature through the major movements and figures of the age. In the first semester, Carlyle, Macauley, Mill and Newman are studied as representative spokesmen of prevailing ideological movements, such as Transcendentalism, Utilitarianism, Anglo-Catholicism; Tennyson and Browning are the major poets studied. In the second semester, the movements include Darwinism, Aestheticism and Imperialism; Huxley, Arnold, Pater, Ruskin, Wilde and Hardy are among the authors read. Offered in alternate years. *Three semester hours each semester.* Mr. Blinderman.

111. AMERICAN LITERATURE.
Through study of representative masterworks, the course traces the main currents of American literature from Puritan times to the present. Authors read during the first semester include Sewall, Edwards, Franklin, Cooper, Poe, Hawthorne, Thoreau, Emerson, Melville and Whitman; during the second semester, Twain, Howells, Dickinson, Adams, Crane, James, Frost, Eliot, Faulkner and Hemingway. *Three semester hours each semester.* Mr. Beard.

112b. AMERICAN LITERARY RENAISSANCE.
This course will explore characteristic writings of Emerson, Thoreau, Hawthorne, Melville, and Whitman; consider their personal and literary interrelations; and seek to evaluate their artistic and cultural influences in the larger context of American society. *Three semester hours.* Mr. Beard.

113. SHAKESPEARE.
Approximately twenty plays, with supplementary critical essays, are read through the year as a basis for a study of Shakespeare's development as a dramatist and his changing attitude toward life. The second semester is devoted mainly to a careful analysis of *Hamlet, Othello, Lear, Macbeth and Antony and Cleopatra. Three semester hours each semester.* Mr. Anderson.

117a. LITERATURE OF THE ROMANTIC PERIOD. Not offered, 1965-66.
The course includes reading of prose works (essays and a gothic novel), study of eighteenth century predecessors of the Romantic Movement, and exposure to background information; emphasis is placed upon the major poetry of the major Romantic poets: Blake, Coleridge, Wordsworth, Byron, Shelley, and Keats. Offered in alternate years. *Three semester hours.* Mr. Blinderman.

122b. MODERN POETRY. Not offered, 1965-66.
A course in English poetry during the forty-year period from the First World War to the death of Dylan Thomas and Wallace Stevens, with brief consideration of the precursors of the period. Yeats, Pound, Eliot, Auden, Frost, Stevens and Thomas are the principal poets studied. Offered in alternate years. *Three semester hours.* Mr. Sultan.

127b. MODERN CONTINENTAL DRAMA.
See description under Comparative Literature. *Three semester hours.* Mr. Schroeder.

128. THEATRE IN WESTERN CIVILIZATION. Not offered, 1965-66.
A history of Western theatre from classical Greece to the present which includes a study of the origins of the theatre, the origin and development of the major theatrical genres (drama, mime, ballet, opera, etc.), the emergence of the national theatre of Western civilization, the history of theatrical methods and techniques (acting, theatre architecture, scene design, production methods, etc.), and the aesthetic, historical, philosophical, and sociological significance of theatre through the ages. The first semester will be a study of Western theatre through the Renaissance; the second semester will cover theatre from the late seventeenth century to the present. Offered at the discretion of the department. *Three semester hours each semester.* Mr. Schroeder.

129b. IBSEN AND SHAW.
The major plays of Ibsen and Shaw will be read in addition to selected non-dramatic works by Shaw. Topics to be considered will include the social and cultural backgrounds of both men, the theatrical conditions in which they functioned, the form and content of their works, their influence on subsequent writers, their theatrical influence, and the significance of criticism of their work. *Three semester hours.* Mr. Schroeder.

130a, 130b. ENGLISH SEMINAR.
This seminar is devoted to the intensive study of a special subject or a small group of writers. It is limited to advanced students who are capable of independent work. Prerequisite: consent of the instructor.

Topics for 1965-66:

First semester: Virginia Woolf, E. M. Forster, and the Bloomsbury Circle.
This seminar will consider the aesthetic and social theories expressed in the novels of Virginia Woolf and E. M. Forster and in the essays of these and other members of the Bloomsbury Circle. *Three semester hours.* Mrs. Hilsinger.

Second semester: Jane Austen and Henry James.
This seminar will be devoted to a study of the novel of manners as a reflection of society and as a work of art. Emphasis will be placed on relationships between the two authors in their handling of content, form, and method. *Three semester hours.*
Mrs. Cunningham.

143b. MODERN BRITISH FICTION.
The course deals primarily with the work of the four major British writers of fiction during the twentieth century: Conrad, Lawrence, Woolf and Joyce. Offered in alternate years. *Three semester hours.* Mrs. Hilsinger.

144a. CONTEMPORARY AMERICAN FICTION.
A critical introduction to the best American fiction since about 1900, with emphasis on its aesthetic values, sociological insights, and philosophical implications. Authors read include Dreiser, James, Anderson, Fitzgerald, Hemingway, Wolfe, Faulkner and Mailer. Offered in alternate years. *Three semester hours.* Mr. Beard.

145a. MODERN CONTINENTAL FICTION. Not offered, 1965-66.
See description under Comparative Literature. *Three semester hours.* Mr. Beard.

146b. INTRODUCTION TO LITERARY CRITICISM. Not offered, 1964-65.
This course involves the discussion of a selection of critics, from Aristotle to the present,

who have been particularly influential in English and American literature. Offered at the discretion of the department. *Three semester hours.* Mr. Carter.

155b. JUNIOR HONORS SEMINAR.
Restricted to juniors who are candidates for honors in English. The purpose of the seminar is to prepare the student for the advanced independent study of literature. It comprises such subjects as the definition of genres, the nature of metaphor, alternative critical approaches to literature and the editing of texts. *Three semester hours.* Mr. Beard.

Fine Arts

DEPARTMENT FACULTY

Samuel P. Cowardin, III, Ph.D., *Associate Professor of Fine Arts, Department Chairman*
Sante Graziani, M.F.A., *Associate Professor (affiliate) of Fine Arts*
John T. Murphey, B.S. in Ed., *Assistant Professor of Fine Arts*

UNDERGRADUATE PROGRAM

The department offers a selection of courses designed to foster understanding and sensitivity in the visual arts through direct contact with the materials of art or the study of artistic achievement in a variety of areas and historical periods. The major in fine arts is offered in conjunction with the School of the Worcester Art Museum. All advanced studio courses at the museum are designated as Fine Arts 199 below. They are described in the catalog of the School of the Worcester Art Museum. The major comprises at least thirty-six credit hours of studio work at the museum, plus Fine Arts 11 and six additional hours chosen from one or more of the following areas: European civilization, history, music, philosophy.

Every candidate for admission who plans to major in fine arts should submit with his application form a portfolio of about a dozen pieces of representative art work. Each piece should be clearly marked with the candidate's name and home address.

COURSES

11. INTRODUCTION TO WESTERN ART.
Lectures during the first four weeks deal with general topics such as design principles and technical procedures. The remainder of the course treats significant works of architecture, sculpture, and painting in the light of their times. Open to freshmen. First semester prerequisite to the second. *Three semester hours.* Mr. Cowardin.

100. ART WORKSHOP.
A studio course on campus which puts the student in direct contact with the materials, techniques, and fascinations of producing a work of art. Designed especially for the non-major, its purpose is to intensify awareness in the variety and subtleties of the esthetic experience through direct activity in esthetic problem solving. Uses a variety of media and approaches. In special circumstances may be counted toward the major in lieu of Fine Arts 111. Six studio hours per week. Open to freshmen. Indivisible course. *Three semester hours.* Mr. Murphey.

111. BASIC DRAWING AND PAINTING.
Introduction to the drawing and painting of objects in the field of vision; theory and practice in the statement of line, form, and light and shade; study of the nature and use

of materials and instruments; exercises from objects and from living models; observation of method and accomplishment found in the museum's collections. Nine hours of studio work per week at the School of the Worcester Art Museum. Open to freshmen who plan to major in fine arts. Indivisible course. *Three semester hours.* Mr. Graziani and Staff.

12b. SURVEY OF WESTERN PAINTING.
General problems of pictorial expression are treated as well as the historical aspects of style. May not be counted in addition to Fine Arts 11. Limited to freshmen and sophomores. *Three semester hours.* Mr. Cowardin.

14a. INTRODUCTION TO THE VISUAL ARTS.
Each of the visual arts is treated in a non-historical way, with special regard for the physical nature of the medium and its expressive potential. May not be counted in addition to Fine Arts 11. Limited to freshmen and sophomores. *Three semester hours.* Mr. Cowardin.

15. ART OF THE RENAISSANCE IN ITALY. Not offered, 1965-66.
Prerequisite: at least one semester course in art history. Offered in alternate years. *Three semester hours.* Mr. Cowardin.

18. ART OF THE MODERN WORLD.
Painting, sculpture, and architecture of the nineteenth and twentieth centuries, with special emphasis on the origins and evolution of the modern esthetic attitude and its progress to date. *Three semester hours.* Mr. Murphey.

191a. INTRODUCTION TO ORIENTAL ART: THE ANCIENT NEAR EAST AND INDIA.
Prerequisite: at least one semester course in art history. Offered in alternate years. *Three semester hours.* Mr. Cowardin.

191b. INTRODUCTION TO ORIENTAL ART: CHINA AND JAPAN.
Prerequisite: at least one semester course in art history. Offered in alternate years. *Three semester hours.* Mr. Cowardin.

199. ADVANCED PAINTING AND DESIGN.
General designation for all courses at the School of the Worcester Art Museum above the elementary level. Ordinarily open only to majors. Consult the department for semester hours. Staff of the Museum School.

Geography

DEPARTMENT FACULTY

Saul B. Cohen, Ph.D., *Professor of Geography; Director of Graduate School of Geography*
Raymond E. Murphy, Ph.D., *Professor of Economic Geography; Editor of Economic Geography*
Henry J. Warman, Ph.D., *Professor of Geography*
Robert W. Kates, Ph.D., *Associate Professor of Geography*
Rodman E. Snead, Ph.D., *Associate Professor of Geography*
Martyn J. Bowden, M.A., *Assistant Professor of Geography*
Guy M. Burnham, A.M., *Lecturer in Cartography*

When the Graduate School of Geography was organized in 1921, Clark became the second university in the United States to establish a separate graduate program in geography. At the present time, advanced training is provided leading to the Master's and Doctor's degrees. In addition, the Staff offers a series of courses for undergraduates within the liberal program of the University.

UNDERGRADUATE PROGRAM

Majors in geography are required to take seven year-courses, or the equivalent, in geography and related fields. At least four, and not more than five, of these courses must be in geography.

Geography 10, Elements of Geography, is usually taken in the freshman year, or as early as possible after the selection of geography as a major. One or two of the following courses may be taken during the sophomore year: Geography 150b, Geography 160a, Geography 191. Juniors and seniors are eligible for 200-level courses.

Subjects in Group A (Science and Mathematics) strongly recommended by the staff are mathematics, geology and biology. Recommended fields listed under Group B (Social Science) include history, economics, international relations, sociology and anthropology.

An Honors Program in geography offers opportunity for independent study and research. Information regarding the program can be obtained from the departmental office.

THE GRADUATE SCHOOL OF GEOGRAPHY

Master of Arts: In order to enter the M.A. program without condition, a student must give evidence of some background in the elements of geography, in economic geography and in cartography. Courses taken to remedy any deficiencies will not count as part of the regular M.A. program.

A first-year student is required to take Geography 360a, Geography 214a and 214b or Geography 220a, and one seminar. He must elect enough additional graduate courses to make a total of five, of which one each semester may be a regional course. In the second semester, if he has no deficiencies, he may elect a single or a double thesis course.

Oral examinations for the master's degree cover four fields (three systematic and one regional) approved by the staff. By April 15 of the year in which the candidate expects to receive his degree, he must submit an acceptable draft of the thesis to his adviser; this will then be circulated among the staff members for approval. After all revisions have been made and the draft approved by the adviser, the thesis is typed in final form. University requirements concerning the thesis can be found in the section on the Graduate School.

Doctor of Philosophy: Normally, to enter the Ph.D. program, a student must have completed all requirements for a master's degree in geography at Clark or at another institution. A student otherwise qualified for doctoral work who does not have a graduate degree in geography should consult the director of the Graduate School of Geography. A student who began his graduate work at Clark may enter the final resident year for the Ph.D. only upon written request and written acceptance by the director. Further details are available from the departmental office.

A doctoral candidate normally elects four courses each semester. If he lacks background in geomorphology or climatology he must take courses in the fields in which he is deficient. As part of his doctoral program he must take at least two seminars. He must pass an examination in French, German, Russian or Spanish, preferably in his first year at Clark. The department may set an additional language or other requirement as the student's field of research may demand. The language and alternative requirements must be fulfilled before the preliminary examination is scheduled.

The candidate offers five fields in his preliminary examination. The major is the field in which the student expects to write his dissertation. One of the four minor fields must be a region. One of the minor fields is to be written, at a time specified by the staff; the remainder of the examination is oral. In addition a short period will be devoted to a discussion of the candidate's dissertation plans.

By March 15 of the year in which the candidate expects to receive his degree he must submit an acceptable dissertation draft to his major professor. If this is approved, it will be circulated among other staff members for their comments and a date set for its defense. If the defense is adequate, and after any necessary revisions have been approved by the major professor, the dissertation is typed in final form. The original and a carbon copy must be delivered to the departmental office at least four weeks before the date of commencement. All dissertations are microfilmed and, for this reason, it is required that illustrations be in black and white, in no case requiring more than a page.

Distinctive Features and Specialization

The Clark Graduate School of Geography has the substantial advantage of being centrally situated within New England, a region of varied rural and urban landscapes and renowned cultural centers.

The School has become a traditional "port of call" for professors of geography from this and other countries, and the graduate students have opportunities to visit with them as well as to attend the lectures which are arranged.

Graduate students are assigned desks and shelves in the Geography Workroom. The Workroom and other sections of the Geography Building contain specialized equipment and research facilities for the use of students and staff. The Libbey Library of the Geography Building serves for general conferences and the reception of visiting lecturers. Workroom and classroom fees, totaling $10 per semester, are payable on November 1 and March 1.

A feature of the Graduate School of Geography is a field program which includes studies of land utilization, geomorphology, meteorology, resources and urban geography, with special training in mapping and other field techniques.

Graduate course work normally begins on the Monday after the close of field camp. A reading period begins about May 1 each year, allowing students time to coordinate their work prior to the oral examinations.

Publications: A professional magazine, *Economic Geography,* is edited by a staff member. Started at Clark University in 1925, it is the only journal published in English that specializes in economic and urban geography. The magazine has a world-wide distribution, with a total circulation of 3,000.

The graduate students, through the years, have maintained the Clark University Geographical Society. It publishes *The Monadnock,* a booklet which keeps geography alumni in touch with each other and with current activities in the school.

COURSES

10. ELEMENTS OF GEOGRAPHY.

Physical and cultural phases of geography and application of some principles of geography to selected regions. Open to freshmen and sophomores. Juniors and seniors admitted only by consent of the instructor. Indivisible course. *Three semester hours each semester.* Mr. Warman.

150b. MANAGEMENT AND CONSERVATION OF RESOURCES.
An introduction to natural resource problems in an era of rising population pressure. Prerequisite: Geography 10 and Economics 11, or equivalent. *Three semester hours.* Mr. Kates.

160a. ECONOMIC GEOGRAPHY.
An introductory study of the major areal differences in both kind and level of economic activity. Prerequisite: Geography 10 or Economics 11, or equivalent. *Three semester hours.* Mr. Kates.

191. CARTOGRAPHY AND GRAPHICS.
Preparation of maps, graphs, charts. Restricted to twenty students. (See instructor). *Three semester hours each semester.* Mr. Burnham.

200b. GEOGRAPHY IN EDUCATION. Not offered, 1965-66.
Geography in the present-day school system; designed to meet needs of those teaching or expecting to teach geography as a separate subject or in the social studies. *Three semester hours.*

202. HONORS.
Independent study, reading and research. Open only to honors undergraduates. *Three to six semester hours.* Staff.

214a. PRINCIPLES OF GEOMORPHOLOGY.
The analysis and distribution of physical features in the geographic landscape. Field trips required, with field trip fee. Prerequisite: Geography 10 or Geology 12, or equivalent. *Three semester hours.* Mr. Snead.

214b. REGIONAL PHYSIOGRAPHY.
The regional interpretation of major land forms of North America and their interrelationships with climate, vegetation and soils. Field trips required, with field trip fee. Prerequisite: Geography 214a or equivalent. *Three semester hours.* Mr. Snead.

220a. ELEMENTS OF PHYSICAL CLIMATOLOGY.
A survey of the elements of climate, atmospheric circulation and the exchange of heat and moisture between the earth and its atmosphere. Prerequisite: Geography 10 or consent of the instructor. *Three semester hours.* Mr. Snead.

220b. REGIONAL CLIMATOLOGY. Not offered, 1965-66.
World classification and description of climates. The various classifications of climate especially as related to vegetation. Prerequisite: Geography 220a or consent of the instructor. *Three semester hours.*

245a. INTRODUCTION TO QUANTITATIVE METHODS IN GEOGRAPHY.
Elementary statistical methods for geographers. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Kates.

272. HISTORICAL-CULTURAL GEOGRAPHY.
An historical approach to the study of man's transformation and use of the earth. *Six semester hours.* Mr. Bowden.

282a. GEOGRAPHY OF ANGLO-AMERICA. Not offered, 1965-66.
Three semester hours.

283a. GEOGRAPHY OF MIDDLE AMERICA.
Three semester hours. Mr. Warman.

283b. GEOGRAPHY OF SOUTH AMERICA.
Three semester hours. Mr. Warman.

285b. GEOGRAPHY OF EUROPE.
Three semester hours. Mr. Bowden.

286b. GEOGRAPHY OF SOUTHERN ASIA.
Three semester hours. Mr. Snead.

287b. GEOGRAPHY OF THE SOVIET UNION. Not offered, 1965-66.
Three semester hours.

291. ADVANCED CARTOGRAPHY.
Three semester hours each semester. Mr. Burnham.

310b. PRINCIPLES OF GEOMORPHOLOGY. Not offered, 1965-66.
Three semester hours.

331. PROBLEMS IN POLITICAL GEOGRAPHY.
Historical development of political geography; current theory and research approaches. *Three semester hours each semester.* Mr. Cohen.

340. RURAL LAND USE. Not offered, 1965-66.
A study of the factors associated with the spatial differentiation of rural land uses. Particular attention will be given to the use of land for agriculture and to relevant methods of area research. *Three semester hours each semester.*

347b. QUANTITATIVE METHODS IN GEOGRAPHIC RESEARCH. Not offered, 1965-66.
Application of quantitative methods to current geographic research. Prerequisite: Geography 245a or equivalent. *Three semester hours.*

350. PROBLEMS OF RESOURCE MANAGEMENT.
Appraisal of methods of estimation, projection and allocation of resource availability and needs. *Three semester hours each semester.* Mr. Kates.

360a. PROBLEMS IN ECONOMIC GEOGRAPHY.
Various research fields, research methods, and detailed techniques in economic geography. *Three semester hours.* Mr. Murphy.

361b. URBAN GEOGRAPHY.
The modern city from the geographic viewpoint, with emphasis on the American city. *Three semester hours.* Mr. Murphy.

362b. PROBLEMS IN HISTORICAL URBAN GEOGRAPHY.
Study of man's changing conception and idealization of the town; and of the external relations and internal structure of urban places from 5000 BC to the present. *Three semester hours.* Mr. Bowden.

363b. SEMINAR IN MARKETING GEOGRAPHY.
Three semester hours. Mr. Cohen.

370a. HUMAN AND CULTURAL GEOGRAPHY. Not offered, 1965-66.
Three semester hours.

390a. AIR PHOTO INTERPRETATION. Not offered, 1965-66.
Three semester hours.

399a. FIELD METHODS AND STUDIES.
In Fall. Fee required. One field camp required of each graduate student. Staff.

SEMINARS

30a. SEMINAR IN POPULATION GEOGRAPHY.
Three semester hours. Mr. Warman.

315b. SEMINAR IN GEOMORPHOLOGY.
Three semester hours. Mr. Snead.

355a. SEMINAR ON RESOURCES. Not offered, 1965-66.
Three semester hours.

356b. SEMINAR ON PERCEPTION OF THE GEOGRAPHIC ENVIRONMENT.
Three semester hours. Mr. Bowden and Mr. Kates.

365b. SEMINAR IN ECONOMIC GEOGRAPHY. Not offered, 1965-66.
Three semester hours.

366a. SEMINAR IN URBAN GEOGRAPHY. Not offered, 1965-66.
Three semester hours.

372a. SEMINAR IN HISTORICAL AND CULTURAL GEOGRAPHY.
Three semester hours. Mr. Bowden.

375a. SEMINAR IN CULTURAL GEOGRAPHY. Not offered, 1965-66.
Three semester hours.

380a. SEMINAR IN PHILOSOPHY OF GEOGRAPHY. Not offered, 1965-66.
Three semester hours.

381a. SEMINAR ON THEMES IN GEOGRAPHIC THOUGHT. Not offered, 1965-66.
Three semester hours.

READING, RESEARCH AND THESIS COURSES

300. READING COURSE.
Prerequisite: consent of the instructor.

301. RESEARCH IN GEOGRAPHY.
Prerequisite: consent of the instructor.

302. THESIS RESEARCH.
Single or double course. Prerequisite: consent of the staff.

Geology

DEPARTMENT FACULTY

Wesley E. Bryers, Ph.D., *Assistant Professor of Geology*

UNDERGRADUATE PROGRAM

The department offers an undergraduate major in cooperation with Dr. Snead of the University's Graduate School of Geography and Joseph R. Sage of the Civil Engineering Department of Worcester Polytechnic Institute.

Majors in geology are required to take seven year-courses or their equivalent in half-year courses. At least four and one-half of these courses must be in geology or geomorphology.

Attendance at an approved summer field camp is required of majors and counts as a half to full-year course in geology. The field station operated by Miami University, Oxford, Ohio is located at Dubois, Wyoming, near Yellowstone National Park. It will be used by all students attending a western field camp. Anyone unable to make arrangements for a summer in the West will be placed in a field camp operated by an eastern college, at the discretion of the department.

Related fields which may be used toward supplementing the requirements for the major are civil engineering, biology, chemistry, mathematics, physics, and cartography. Courses chosen from these fields are based upon the student's desire to fulfill the general requirements for graduate work. They are not required by the department for an undergraduate major except where they relate to the general requirements of the university.

COURSES

11. GENERAL GEOLOGY.

Introduction to geology, origin of the earth, its development through time and the succession of plant and animal life. First semester deals with common rocks, their structure, origin and occurrence; geological activities of the air, streams and sea; nature of glaciers, volcanoes and earthquakes, and age of the earth. Laboratory work consists of rock and mineral identification and map interpretation. Second semester deals with the origin of continents and ocean basins, their development through time; the geologic history of North America; and evolution of life through geologic time. Laboratory work consists of geologic map interpretation and fossil identification. Occasional field trips. Indivisible course. Open to freshmen. Laboratory. *Four semester hours each semester.* Mr. Bryers and Assistants.

111a. INTRODUCTORY MINERALOGY.

Study of crystallographic, physical and chemical properties of common minerals. Field trip. Laboratory. *Four semester hours.* Mr. Bryers.

122. ECONOMIC GEOLOGY.

Introductory survey of the origin and structural relations of the important metallic and non-metallic mineral deposits. Techniques of exploration and mining will be reviewed. Field trips. Laboratory. *Four semester hours each semester.* Mr. Bryers.

131b. STRUCTURAL GEOLOGY.

Not offered, 1965-66.

Analysis of rock deformation based on the principles of mechanics and the utilization of research data obtained from laboratory and field investigations. The principles of structural geology will be applied to the interpretation of major fold, fault and fracture systems of the earth. Field trip. Laboratory. *Four semester hours.* Mr. Bryers.

141a. THE FOSSIL RECORD. Not offered, 1965-66.
A systematic survey of the morphology, taxonomy and geologic history of groups of organisms commonly found as fossils. The techniques and principles used for interpreting the fossil communities in terms of age and environment will be discussed. Field trip. Laboratory. *Four semester hours.* Mr. Bryers.

161a and b. SPECIAL PROJECTS.
Three semester hours each semester. Mr. Bryers.

SUMMER FIELD CAMP IN GEOLOGY.
Required of geology majors and should be taken at the end of the sophomore or junior year at a field camp approved by the department. *Three to six semester hours.*

Geography: course descriptions are under the section, "Geography."

214a. PRINCIPLES OF GEOMORPHOLOGY. Mr. Snead.

214b. REGIONAL PHYSIOGRAPHY. Mr. Snead.

220a. ELEMENTS OF PHYSICAL CLIMATOLOGY. Mr. Snead.

220b. REGIONAL CLIMATOLOGY. Mr. Snead.

Civil Engineering: course descriptions are in the section under "Department of Civil Engineering" in the catalog of Worcester Polytechnic Institute.

CE. 540. ENGINEERING GEOLOGY. Mr. Sage.

CE. 541. SEDIMENTATION AND STRATIGRAPHY. Mr. Sage.

German

DEPARTMENT FACULTY

Karl J. R. Arndt, Ph.D., *Professor of German, Department Chairman*
James S. Edwards, A.M., *Associate Professor of German*
Guy T. Hollyday, Ph.D., *Assistant Professor of German*
Erika T. Theobald, Ph.D., *Assistant Professor of German*

UNDERGRADUATE PROGRAM

The Department of German intends primarily to give its students a liberal and humanistic education by presenting and interpreting the language, life, and literature of German-speaking peoples. Students interested in German as their major should consult the department chairman; for honors programs, Mr. Edwards. The Department requires a regular class attendance in all courses.

FIRST YEAR COURSES

11. INTRODUCTORY GERMAN.
A comprehensive introduction to the written as well as the spoken language. The course aims at acquisition of all four skills: reading, writing, speaking and understanding. The language laboratory will be used to assist in reaching these goals. Laboratory fee. Indivisible course. *Three semester hours each semester.*
Mr. Edwards, Mr. Hollyday and Mrs. Theobald.

SECOND YEAR COURSES

12. INTERMEDIATE GERMAN.
Review of German grammar. Study of expository and narrative prose. Aural and oral training will be continued with the assistance of the language laboratory. Laboratory fee. Prerequisite: German 11 or advanced placement. Indivisible course. *Three semester hours each semester.* Staff.

14. INTERMEDIATE ORAL AND WRITTEN GERMAN. Not offered, 1965-66.
Principally for students who decide to major in German but have no preparatory school training in the language. Does not complete requirement in German. Intensive aural-oral drill, assisted by the language laboratory. Prerequisite: B+ in German 11. *Three semester hours each semester.* Mrs. Theobald.

THIRD YEAR COURSES (These level courses complete the language requirement in German.)

130. GERMAN CLASSICISM. Not offered, 1965-66.
Reading and interpretation of works of Lessing, Goethe, and Schiller. Prerequisite: German 12 or advanced placement. *Three semester hours each semester.* Mr. Arndt.

132. ADVANCED COMPOSITION AND LITERATURE.
Intensive training in the aural, oral, and written use of the language in preparation for teaching and government service. Required of majors. Prerequisite: oral and written examination. *Three semester hours each semester.* Mrs. Theobald.

134. GERMAN LITERATURE SINCE GOETHE.
Reading and interpretation of representative works of German literature since Goethe. Prerequisite: German 12 or advanced placement. *Three semester hours each semester.* Mr. Edwards.

136. GERMAN LYRICS.
German lyric poetry from the Baroque to the present. Prerequisite: German 12. *Three semester hours each semester.* Mr. Hollyday.

FOURTH YEAR COURSES

154. HISTORY OF GERMAN LITERATURE. Not offered, 1965-66.
Survey of German literature from earliest times to the present. Given in German. Prerequisite: German 132 or consent of the instructor. *Three semester hours each semester.* Mr. Arndt.

162a. FAUST. Not offered, 1965-66.
Reading and discussion of Goethe's *Faust I and II*. Given in German. Prerequisite: German 132 or consent of the instructor. *Three semester hours.* Mr. Arndt.

164b. THE GERMAN NOVEL OF SELF-DEVELOPMENT. Not offered, 1965-66.
A study of the German *Entwicklungsroman,* starting with von Eschenbach's *Parzival,* in modern German. Given in German. Prerequisite: German 132 or consent of the instructor. *Three semester hours.* Mr. Arndt.

165a. FROM EXPRESSIONISM TO CATASTROPHE. Not offered, 1965-66.
German literature from World War I to World War II. Given in German. Prerequisite: German 132 or consent of the instructor. *Three semester hours.* Mr. Arndt.

166. GERMAN DRAMA SINCE KLEIST.
Given in German. *Six semester hours.* Mr. Edwards.

198. SEMINAR.
Principally for majors but open to other qualified upperclassmen. Research into selected areas of German literature. Prerequisite: consent of the instructor. *Three semester hours each semester.* Mr. Arndt.

COURSES GIVEN IN ENGLISH

141. GERMANIC CIVILIZATION. Not offered, 1965-66.
Illustrated lecture course on the literature, history and fine arts of German lands from the Holy Roman Empire to the present day, with emphasis on the Reformation, Age of Enlightenment and the Classical Period. Given in English. Meets the fine arts requirement for students admitted before September, 1964. *Three semester hours each semester.* Mr. Edwards.

170a. THE FAUST THEME IN LITERATURE. Not offered, 1965-66.
A study of the fortunes of Faust and the Faustian spirit as treated in European and American literature from the Reformation to Hiroshima. Given in English. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Arndt.

172. THE GERMAN CONTRIBUTION TO WORLD LITERATURE.
Goethe in 1827: "The epoch of world literature is here and everyone must now work to hasten the development of this epoch." This course will study such translated works of German literature which contribute most to the understanding of Germany and her place in the Western world. Reading, analysis and discussion of translated works from various periods of German literature, starting with the *Song of the Nibelungs* and ending with representative works of the currently dominant "Group 1947." Given in English. Prerequisite: consent of the instructor. *Three semester hours each semester.* Mr. Arndt.

History, Government and International Relations

DEPARTMENT FACULTY

Sherman S. Hayden, Ph.D., *Professor of International Relations, Department Chairman*
Robert F. Campbell, Ph.D., *Professor of American History*
H. Donaldson Jordan, Ph.D., *Professor of English History*
Dwight E. Lee, Ph.D., *Jacob and Frances Hiatt Professor of European History*
Clifford K. Shipton, Ph.D., *Professor (affiliate) of American History*
George A. Billias, Ph.D., *Associate Professor of American History*
Morris H. Cohen, Ph.D., *Associate Professor of Government**
Gerald N. Grob, Ph.D., *Associate Professor of American History*
Daniel R. Borg, Ph.D., *Assistant Professor of European History*

*On Leave, second semester, 1965-66.

UNDERGRADUATE PROGRAM

The department offers basic courses in the fields of American, European and British history, American and European government, and international relations. It offers major programs of study in history, government and international relations.

All history and government majors must take History 10, preferably in the freshman year; Economics 11, normally before the end of the sophomore year, and History 205a and 205b, in either the junior or senior year. Majors in government should also take Government 15 before the end of the sophomore year. Further elections in this and related departments are determined by the student's special interest, but they are expected to include at least two upper-class courses in this department, in addition to History 205.

Majors in international relations should take History 10 in the freshman year, and Economics 11 and Government 14 before the end of the sophomore year. Also required for this major are History 205a. Government 240b and 241, six hours in economics (preferably 207 or 200) and six hours in geography or in history.

Non-majors who have not taken History 10 may elect other courses offered by the department with permission of the instructor if, in his judgment, the student has an adequate background for the course.

GRADUATE PROGRAM

The principal fields of graduate study are American, English and European history and politics, modern diplomacy, and the international relations of the United States, Europe, the Commonwealth and the Far East.

Master of Arts: The program for the degree of Master of Arts is worked out individually with each student, who may choose to concentrate on history, government or international relations. All students are required to take the departmental seminar, History 30a.

A master's thesis and an oral examination are required for this degree. A complete draft of the thesis must be received by the Monday following spring recess of the year in which the candidate hopes to receive the degree.

Doctor of Philosophy: The program for the degree of Doctor of Philosophy may be taken in history or international relations. Each student must choose four fields of study, to be agreed upon as early as possible in the first year of residence beyond the Master of Arts and after a conference between the student and the department staff. In a history program, at least one field must be chosen from related subjects. In an international relations program, work in economics and geography should be included upon consultation among the departments concerned. One or two of the four fields should be completed by passing written examinations. The others are tested by an oral examination given by the staff. The passing of the four fields by courses or examination constitutes the "preliminary examination."

Before completing the preliminaries, examinations in French and German must be passed. Permission may be requested to substitute another language for one of these or a second examination in either one designed to demonstrate research competence at a high level.

The doctoral dissertation, written in that field which is designated as the special field, must be submitted in complete preliminary draft to the supervising instructor not later than March 1 of the year in which the candidate hopes to receive the degree. The final examination for the doctorate covers both the dissertation and the special field.

Some teaching experience at Clark, or such other teaching as the department may regard as equivalent, is prerequisite to the Doctor's degree.

Attention is invited to a three-year special program leading to the Doctor's degree in Colonial and Early American History.

COURSES IN HISTORY

10. EUROPE AND THE UNITED STATES SINCE 1500.
A study of selected topics designed to illustrate the evolution of modern Western society. The emphasis throughout will be on the thought patterns underlying institutional developments. *Three semester hours each semester.* Mr. Borg, Mr. Campbell, Mr. Grob.

12. HISTORY OF ENGLAND.
Constitutional history is emphasized, particularly in the first semester. *Three semester hours each semester.* Mr. Jordan.

202. THE IDEA OF HISTORY.
A seminar on the idea of history from Thucydides to the Nineteenth Century. *Three semester hours each semester.* Mr. Borg.

205a. HISTORY OF POLITICAL THOUGHT.
A study of the main trends of Western political thought to the eighteenth century with reference to their underlying social, political and economic realities. Required of departmental majors. *Three semester hours.* Mr. Jordan.

205b. RECENT POLITICAL THOUGHT.
The conflicting ideologies of our time in their development since the French Revolution. Required of majors in history and government. *Three semester hours.* Mr. Jordan.

208a. TOTALITARIANISM. Not offered, 1965-66.
A seminar on the origins, ideology and operation of the German Nazi and Italian Fascist regimes. *Three semester hours.* Mr. Borg.

209b. CHURCH AND STATE IN MODERN EUROPE. Not offered, 1965-66.
A seminar on church-state relations since the Reformation, with special reference to political attitudes and involvements of established churches since the French Revolution. *Three semester hours.* Mr. Borg.

21. FOUNDATIONS OF MODERN EUROPE. Offered, second semester, 1965-66.
The later Medieval, Renaissance and Reformation periods. Offered in alternate years. *Three semester hours each semester.* Mr. Lee, Mr. Borg.

210. EUROPE, 1648-1815. Not offered, 1965-66.
The rise of the absolute state, the old regime, the French Revolution and Napoleon. Attention is given to the rise of science, the Enlightenment and the origins of liberalism and rationalism. Offered in alternate years. *Three semester hours each semester.* Mr. Borg.

211b. EUROPE, 1815-1939. Not offered, 1965-66.
Offered in alternate years. *Three semester hours.* Mr. Lee.

213b. EUROPEAN DIPLOMATIC HISTORY, 1848-1918.
Three semester hours. Mr. Lee.

215. GERMANY SINCE 1500.
Offered in alternate years. *Three semester hours each semester.* Mr. Borg.

22b. TUDOR AND STUART ENGLAND.
The period from 1485 to 1688 with attention to the social backgrounds of English literature and conditions leading to the colonization of America. *Three semester hours.* Mr. Jordan.

221a. ENGLAND IN THE TWENTIETH CENTURY.
Stress on individual research on significant problems. Offered in alternate years. *Three semester hours.* Mr. Jordan.

225a. RECENT HISTORY OF THE BRITISH EMPIRE AND COMMONWEALTH.
Not offered, 1965-66.
Developments since about 1900. Offered in alternate years. *Three semester hours.* Mr. Jordan.

230. INTELLECTUAL HISTORY OF THE UNITED STATES.
American ideas from the late 17th century to the present. *Two semester hours in the first semester and four semester hours in the second semester.* Mr. Grob.

231. AMERICAN COLONIAL HISTORY.
From the first English settlements to the Revolutionary War era. *Three semester hours.* Mr. Billias.

234a. AMERICAN DIPLOMATIC HISTORY.
From 1776 to about 1941. Offered in alternate years. *Three semester hours.* Mr. Hayden.

235a. THE UNITED STATES IN THE TWENTIETH CENTURY.
Offered in alternate years. *Three semester hours.* Mr. Campbell.

236b. AMERICAN POLITICAL HISTORY, 1828-1877.
Three semester hours. Mr. Grob.

237. ERA OF THE AMERICAN REVOLUTION.
Three semester hours each semester. Mr. Billias.

238a. THE FEDERALIST PERIOD.
Opportunity for group discussion and individual research in the early national period. *Three semester hours.* Mr. Billias.

238b. THE JEFFERSONIAN PERIOD.
Opportunity for group discussion and individual research in the early national period. *Three semester hours.* Mr. Billias.

239. INTRODUCTION TO RESEARCH IN AMERICAN COLONIAL HISTORY.
Lectures on selected topics and opportunities for research in the field; discussion of problem areas. Admission only by permission of the instructors. *Three semester hours each semester.* Mr. Billias, Mr. Shipton.

274b. THE MODERN FAR EAST.
Primarily, international relations in the region since 1895. Offered in alternate years. *Three semester hours.* Mr. Hayden.

281b. RUSSIA, 1700-1917. Not offered, 1964-65.
Three semester hours. Mr. Lee.

282b. HISTORY OF THE SOVIET SYSTEM. Not offered, 1965-66.
A brief survey of Marxist ideology and pre-1917 Russian history and a concentration on the political, economic (non-technical) and social evolution of Russia under the Communist regime. *Three semester hours.*

30a. DEPARTMENT SEMINAR.
Introduction to bibliography and methods of research. Required of all first-year graduate students in the department. *Three semester hours.* Mr. Billias and the Staff.

314a. EUROPEAN INTERNATIONAL RELATIONS, 1870-1918.
Three semester hours. Mr. Lee.

331. THE LITERATURE OF AMERICAN HISTORY: The National Period.
Readings and discussion in the field of United States history since 1815. *Three semester hours each semester.* Mr. Grob.

332. PROBLEMS IN AMERICAN COLONIAL HISTORY.
Three semester hours each semester. Mr. Billias.

GRADUATE READING AND THESIS COURSES

31. READING }
310. THESIS } IN THE HISTORY AND INTERNATIONAL RELATIONS OF EUROPE. Mr. Borg, Mr. Lee.

32. READING }
320. THESIS } IN THE HISTORY AND INTERNATIONAL RELATIONS OF ENGLAND AND THE BRITISH EMPIRE. Mr. Jordan.

33. READING }
330. THESIS } IN THE HISTORY OF THE UNITED STATES. Mr. Billias, Mr. Grob, Mr. Campbell.

38. READING }
380. THESIS } IN RUSSIAN HISTORY.

COURSES IN GOVERNMENT

14. INTERNATIONAL RELATIONS.
A survey of world politics since 1914, with emphasis on the shifting patterns of power and the rise of new nations and revolutionary doctrines. The second semester deals mainly with World War II and later events. *Three semester hours each semester.*
Mr. Hayden.

15. INTRODUCTION TO AMERICAN GOVERNMENT.
A short survey of the theories of the origins and purposes of the state is followed by a study of American government with emphasis on contemporary problems of the federal government. *Three semester hours each semester.* Mr. Cohen.

240b. SEMINAR IN INTERNATIONAL RELATIONS.
Basic ideas and their application to current problems. Required for international relations majors. Open to a limited number of non-majors at the discretion of the instructor. *Three semester hours.* Mr. Hayden.

241. INTERNATIONAL LAW AND ORGANIZATION. Not offered, 1965-66.
First semester deals with the historic principles of international law and their application in the modern world. Second semester deals with the institutions created to handle problems of commerce, welfare and collective security on an international basis. Offered in alternate years. *Three semester hours each semester.* Mr. Hayden.

25a. COMPARATIVE GOVERNMENT.
The governments and politics of Great Britain and the major European powers. Offered in alternate years. *Three semester hours.* Mr. Cohen.

251a. AMERICAN POLITICAL PARTIES. Not offered, 1965-66.
American party organizations, pressure groups and the electorate in American politics, with emphasis on current problems and trends in the field. Offered in alternate years. *Three semester hours.* Mr. Cohen.

252b. INTRODUCTION TO PUBLIC ADMINISTRATION. Not offered, 1965-66.
An examination of the role of administration in modern government, including problems of personnel administration, fiscal management, administrative regulation and government organization. Offered in alternate years. *Three semester hours.* Mr. Cohen.

254. AMERICAN CONSTITUTIONAL HISTORY AND LAW. Not offered, 1965-66.
A study of the major developments in our constitutional system and law, with emphasis in the second semester on contemporary cases and problems. *Three semester hours each semester.* Mr. Campbell, Mr. Cohen.

255b. THE LEGISLATIVE PROCESS. Not offered, 1965-66.
A study of policy-making in Congress, involving problems of legislative organization and procedure, leadership and presidential-legislative relationships, examined primarily by the case method and by individual research on particular pieces of recent legislation. *Three semester hours.* Mr. Cohen.

341a. PROBLEMS IN INTERNATIONAL RELATIONS.
Three semester hours. Mr. Hayden.

351b. PROBLEMS IN AMERICAN GOVERNMENT.
Three semester hours. Mr. Cohen.

GRADUATE READING AND THESIS COURSES

34. READING }
340. THESIS } IN INTERNATIONAL RELATIONS. Mr. Hayden.

35. READING }
350. THESIS } IN AMERICAN AND COMPARATIVE GOVERNMENT AND POLITICS. Mr. Cohen.

Linguistics

115. MAN AND LANGUAGE. Not offered, 1965-66.
An introduction to the analysis of the nature and function of human language and its role in the life of individuals and societies. The approach is interdisciplinary, with attention to the points of view of philology, contemporary linguistics, anthropology, psychology and philosophy. The lectures focus on such questions as: What is language? What is the relation between language and thought? To what extent does our language

determine how we perceive the world? Why and how do languages change? What other functions does language serve besides communication? Why do we not have a world language? How have linguistics achieved an objective, scientific analysis of linguistic systems? What are the limitations of such a science?

The course is designed for the general student who wishes to know more about the nature of the uniquely and universally human institution of language, and for the student or teacher of English or foreign languages who is interested in the light which linguistic science can throw upon the relations between his field and other areas of life and knowledge.

First semester: lectures. Second semester: a seminar in which the members of the group report in depth on problems of their choosing.

Consent of the instructor required. Normally offered in alternate years; will next be offered in 1967-68. *Three semester hours each semester.* Mr. Reid.

Mathematics

DEPARTMENT FACULTY

Seymour Hayden, Ph.D., *Associate Professor of Mathematics, Department Chairman*
Zalman Rubinstein, Ph.D., *Associate Professor of Mathematics*
John S. Stubbe, Ph.D., *Associate Professor of Mathematics*
Henry Frandsen, Ph.D., *Assistant Professor of Mathematics*
John F. Kennison, Ph.D., *Assistant Professor of Mathematics*
Connor Lazarov, M.A., *Instructor in Mathematics*

UNDERGRADUATE PROGRAM

The department offers courses leading to a major in mathematics, courses necessary for the study of physical and certain social sciences and courses for the student wishing to learn the fundamental concepts of mathematics.

The departmental major requires five year-courses in mathematics, including either Mathematics 214 or Mathematics 215 and excluding Mathematics 11, as well as two year-courses in a related field. Mathematics 13, 113a and 114b should normally be taken in the Sophomore year at the latest. Students showing particular promise in the first semester of Mathematics 12 are encouraged to take Mathematics 114b in their Freshman year. A student who qualifies may undertake Honors work in his Junior and Senior years.

A non-credit course in Fortran is offered each year; and the courses in Probability and Statistics, Applied Mathematics, and Numerical Analysis include work with the Computer.

GRADUATE PROGRAM

The department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The requirements for the M.A.* are as follows: (1) Mathematics 300; (2) three courses beyond Mathematics 300; except that with the consent of the department, a student may substitute two courses below Mathematics 300 in place of one beyond; (3) a reading knowledge of a foreign language; (4) a Master's thesis; and (5) an oral examination.

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*All candidates for the M.A. and Ph.D. degrees in Mathematics will be required to serve as teaching assistants or as assistants in the Computing Center as part of the work for their degrees.

The requirements for the Ph.D.*, in addition to the general requirements of the Graduate School, are as follows: (1) a student must pass a preliminary examination, which he would normally take after his second year of residence; the examination will be designed to test the student's knowledge and facility in the basic material of algebra, analysis, and topology; (2) he must also pass a qualifying examination in his field of specialization, normally to be taken at the end of his second or third year of residence; (3) the University Language requirement must be passed in either German, French, or Russian, as well as a departmental examination in a second language; (4) the candidate for the Ph.D. must present an acceptable dissertation which is an original contribution to mathematics, and must pass a final oral examination defending his dissertation.

Graduate scholarships, teaching assistantships, Computing Center assistantships, and fellowships are available.

COURSES

11. Fundamentals of Mathematics.

A logical development of elementary mathematics: including an axiomatic treatment of the real number system, arithmetic and elementary algebra, functions and relations, polynomials and topics from the theory of equations, introductory analytic geometry, and the exponential, logarithmic, and trigonometric functions. As a background, the arithmetic and algebra over arbitrary sets will first be considered. *Three semester hours each semester.* Mr. Kennison and Staff.

12. Calculus.

Introduction to differential and integral calculus; essential for further study in mathematics as well as for the study of applications in the natural and social sciences. *Three semester hours each semester.* Mr. Frandsen and Staff.

13. Intermediate Calculus.

Geometric and physical applications of integration, sequences and series, three-dimensional analytic geometry, partial differentiation, multiple integrals, and a brief introduction to differential equations. Prerequisite: Mathematics 12. *Three semester hours each semester.* Mr. Lazarov.

113a. Introduction to Linear Algebra.

Mathematical induction, matrices, determinants, vector spaces. Euclidean vector spaces and quadratic forms. Prerequisite: Mathematics 12, or a B+ in Mathematics 11 plus consent of the instructor. Mathematics majors will normally take Mathematics 113a concurrently with Mathematics 13. *Three semester hours.*

114b. Introduction to Analysis.

The real number system, sequences, limits of functions, continuity, uniform continuity, differentiability and elements of point-set topology. Prerequisite: Mathematics 12, or a grade of A— in one semester of Mathematics 12 plus consent of the instructor. Mathematics majors will normally take Mathematics 114b concurrently with Mathematics 13. *Three semester hours.*

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*All candidates for the M.A. and Ph.D. degrees in Mathematics will be required to serve as teaching assistants or as assistants in the Computing Center as part of the work for their degrees.

124a. ELEMENTARY THEORY OF NUMBERS. Not offered, 1965-66.
A study of the properties of divisibility, prime numbers, congruences and residues. Prerequisite: Mathematics 12. *Three semester hours.*

134b. INTRODUCTION TO MATHEMATICAL LOGIC. Not offered, 1965-66.
Axiomatic development of sentential and restricted predicate calculus; theory of classes, relations and functions; introduction to cardinal and ordinal numbers. *Three semester hours.*

145a. DIFFERENTIAL GEOMETRY. Not offered, 1965-66.
Elements of the metric geometry of curves and surfaces in Euclidean space developed by methods of calculus and analytic geometry extended to three dimensions. Prerequisite or to be taken concurrently: Mathematics 13. *Three semester hours.*

146b. INTRODUCTION TO GEOMETRY. Not offered, 1965-66.
Topics from projective geometry, non-Euclidean geometry and the foundations of Euclidean geometry. Prerequisite: Mathematics 13 or a B— in Mathematics 12. *Three semester hours.*

150a. POINT-SET TOPOLOGY. Not offered, 1965-66.
Set theory, topological spaces, continuous functions and metric spaces. Prerequisite: Mathematics 13 or a B— in Mathematics 12. *Three semester hours.*

210. MATHEMATICAL STATISTICS. Not offered, 1965-66.
Elements of probability theory, frequency distribution test of significance, large and small sampling, analysis of variance. Prerequisite: Mathematics 13. *Three semester hours each semester.* Mr. Stubbe.

212. NUMERICAL ANALYSIS. Not offered, 1965-66.
Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13. *Three semester hours each semester.* Mr. Stubbe.

214. ADVANCED CALCULUS.
Topics selected from among partial differentiation, integration, infinite series, improper integrals. Fourier series, integral transform and the calculus of variations. Prerequisite: Mathematics 114b, or consent of the instructor. *Three semester hours each semester.*
Mr. Rubinstein.

215. MODERN ALGEBRA.
Introduction to the theory of groups, rings, integral domain, fields, vector spaces, matrices and related topics. Prerequisite: Mathematics 113a or consent of the instructor. *Three semester hours each semester.* Mr. Frandsen.

219. PROJECTIVE GEOMETRY. Not offered, 1965-66.
Synthetic and analytic projective geometry, including the projective theory of conics. Prerequisite: Mathematics 12 or consent of the instructor. *Three semester hours each semester.*

220. APPLIED MATHEMATICS. Not offered, 1965-66.
Ordinary and partial differential equations and their applications, vector analysis, infinite series, line and surface integrals, Bessel functions, Legendre polynomials and Fourier series, introduction to functions of a complex variable. Prerequisite: Mathematics 13. *Three semester hours each semester.* Mr. Stubbe.

290. TOPICS IN ANALYSIS.
Content will be changed from year to year to fit the needs of graduate students. *Three semester hours each semester.* Staff.

291. TOPICS IN ALGEBRA.
Content will be changed from year to year to fit the needs of graduate students. *Three semester hours each semester.* Staff.

298. HONORS I.
Three semester hours each semester. Staff.

299. HONORS II.
Three semester hours each semester. Staff.

300. FOUNDATIONS OF MATHEMATICS.
Three semester hours each semester. Staff.

316. FUNCTION OF A COMPLEX VARIABLE. Not offered, 1965-66.
Analytic functions, line integrals, conformal mapping. Riemann surfaces. Prerequisite: Mathematics 214 or consent of the instructor. *Three semester hours each semester.* Mr. Rubinstein.

318. FUNCTIONS OF A REAL VARIABLE.
Foundations of the real number system, algebra of sets, transfinite arithmetic, metric spaces, topological spaces, sequences and series, measure theory, differentiation and integration and functional analysis. Prerequisite: Mathematics 214; corequisite: Mathematics 300. *Three semester hours each semester.* Mr. Kennison.

321. ALGEBRAIC TOPOLOGY. Not offered, 1965-66.
Introduction to algebraic topology including homotopy theory, singular and simplicial homology, and application to general spaces. Prerequisite: Mathematics 214 and 215. *Three semester hours each semester.* Mr. Lazarov.

325. ADVANCED MODERN ALGEBRA.
Galois theory, group theory, Wedderburn structure theorems for rings and linear algebras, introduction to algebraic number fields. Prerequisite: Mathematics 215; corequisite: Mathematics 300. *Three semester hours each semester.* Mr. Hayden.

330. MASTER'S THESIS.

341. DIFFERENTIAL EQUATIONS.
Differential equations of the first order solvable by elementary methods. The linear equation of the first order. Integration factors. Elementary higher order equations. Existence and uniqueness theorems. The general theory of linear differential equations. Euler's equation. Systems of differential equations. Infinite series solutions of several order linear equations. The hypergeometric, Legendre and Bessel equations. Sturm-

Liouville theory for second order differential equations. Green's function and eigenvalue problems.

Elementary partial differential equations. Particular and general solutions. Initial and boundary conditions. Homogeneous and non-homogeneous linear equations of the second order. The Fourier series method. Existence, uniqueness and representation of solutions. Prerequisite: Mathematics 214 or consent of the instructor. *Three semester hours each semester.* Mr. Rubinstein.

365. DIFFERENTIAL GEOMETRY.
A study of differentiable manifolds. Prerequisite: Mathematics 214 and 215. *Three semester hours each semester.* Mr. Lazarov.

376. REPRESENTATION THEORY OF FINITE GROUPS.
Prerequisite: Mathematics 325 and consent of the instructor. *Three semester hours each semester.* Mr. Hayden.

381. SEMINAR IN COMPLEX VARIABLE.
Three semester hours each semester. Mr. Rubinstein.

382. SEMINAR IN ABSTRACT ANALYSIS AND POINT-SET TOPOLOGY.
Three semester hours each semester. Mr. Kennison.

383. SEMINAR IN ALGEBRA. Not offered, 1965-66.
Three semester hours each semester.

390. READINGS IN MATHEMATICS.
Reading of the mathematical literature related to the student's research program. *Three semester hours each semester.* Staff.

391. RESEARCH IN MATHEMATICS.
Direction of the Ph.D. dissertation. *Three semester hours each semester.* Staff.

399. DEPARTMENTAL COLLOQUIUM.
Three semester hours each semester. Invited Lecturers and Staff.

Music

DEPARTMENT FACULTY

Relly Raffman, A.M., *Associate Professor of Music, Department Chairman*
Wesley M. Fuller, M.Mu., *Assistant Professor of Music*

UNDERGRADUATE PROGRAM

The department offers courses designed to teach students how to listen to music intelligently, to develop a comprehension of music on its own terms and to acquaint students with representative works from various periods of music history.

To be admitted to the music major, a student must demonstrate through a written examination a knowledge of the fundamentals of music, and he must demonstrate no later than the beginning of the sophomore year the ability to read and perform simple keyboard works.

The music major includes the following courses:

Theory: 110b, 121a, 122a, 123b, 124a and 125b.

Music History: 12a, 112a, 13b, 113b, 14a, 114a, 15b, 115b, and 16b or 17b.

Associated Studies: a one-semester course in either esthetics or art.

In the senior year, students who wish to emphasize composition should elect Music 118; students who wish to emphasize music history should elect Music 128.

Although there is no private instrumental instruction offered at the University, it is strongly recommended that students engaged in the major program carry on their study with a qualified teacher. Practice space is available at the University at a nominal rental fee. Students engaged in the major program also are expected to become members of the University Chorus and/or Orchestra.

COURSES

10a. Introduction to Music.

Designed for the non-major, this course is a prerequisite for entrance into Music 12 through 17, inclusive. No credit toward the major allowed. Open to freshmen. *Three semester hours.* Staff.

110b. Fundamentals of Music.

Problems in sight-reading, ear-training and conducting. Three fifty-minute laboratory periods weekly. Required of all majors by the end of the sophomore year. Open to freshmen. Offered in alternate years. *One semester hour.* Staff.

121a. Primary Theory.

Open to freshmen. Prerequisite: consent of instructor. *Three semester hours.* Mr. Raffman.

12a. Medieval and Renaissance Periods. Not offered, 1965-66.

A survey of music before 1600. Prerequisite: 10a. Offered in alternate years. *Three semester hours.* Mr. Fuller.

112a. Special Topics in Medieval and Renaissance Music. Not offered, 1965-66.

Independent study. Required of all music majors, but open to anyone concurrently enrolled in 12a. *One semester hour.* Mr. Fuller.

122a. Theory: Modal Counterpoint. Not offered, 1965-66.

Offered in alternate years. Prerequisite: 21a. *Three semester hours.* Mr. Fuller.

13b. Baroque and Classical Periods. Not offered, 1965-66.

A survey of music from 1600 to 1800. Offered in alternate years. *Three semester hours.* Staff.

113b. Special Topics in Baroque and Classical Music. Not offered, 1965-66.

Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 13b. *One semester hour.* Staff.

123b. Theory: 18th Century Counterpoint. Not offered, 1965-66.

Canon and Fugue. Prerequisite: 21a. Offered in alternate years. *Three semester hours.* Mr. Raffman.

14a. Nineteenth Century Music.

A survey of the Romantic Period. Offered in alternate years. Prerequisite: 10a. *Three semester hours.* Mr. Raffman.

114a. Special Topics in 19th Century Music.

Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 14a. *One semester hour.* Mr. Raffman.

124a. THEORY: 19TH CENTURY PRACTICE.
Prerequisite: 21a. Offered in alternate years. *Three semester hours.* Mr. Fuller.

15b. TWENTIETH CENTURY MUSIC.
Prerequisite: 10a. Offered in alternate years. *Three semester hours.* Staff.

115b. SPECIAL TOPICS IN 20TH CENTURY MUSIC.
Independent study. Required of all music majors, but open to anyone concurrently enrolled in 15b. *One semester hour.* Staff.

125b. THEORY: 20TH CENTURY PRACTICE.
Prerequisite: 21a and 24a. Offered in alternate years. *Three semester hours.* Staff.

16b. CHORAL MUSIC. Not offered, 1965-66.
Selected choral compositions from all periods of music history will be analyzed with score and recording. Because the study of performance problems is of key importance, a number of the works will be performed by the class. Open to freshmen. Prerequisite: 10a, or permission of the instructor. Offered in alternate years. *Three semester hours.* Mr. Fuller.

17b. OPERA.
With the help of translated librettos, recordings and selected readings, a study is made of a group of operas representing all periods of music history, with emphasis on the many solutions to the combination of music and drama. Prerequisite: 10a. Offered in alternate years. *Three semester hours.* Mr. Fuller.

118. SENIOR SEMINAR IN MUSIC HISTORY.
Three semester hours each semester. Staff.

128. SENIOR SEMINAR IN COMPOSITION.
Three semester hours each semester. Staff.

Philosophy

DEPARTMENT FACULTY

Robert N. Beck, Ph.D., *Professor of Philosophy, Department Chairman*
Jefferson A. White, Ph.D., *Assistant Professor of Philosophy*

UNDERGRADUATE PROGRAM

The department offers courses to students who wish to broaden their perspective and trace relations among the various fields of knowledge and to students who wish to major in philosophy.

The major consists of four courses in philosophy and three additional courses in related fields. The latter are determined according to the student's special interest.

COURSES

11a. LOGIC AND SCIENTIFIC METHOD.
Principles of valid reasoning and inductive methods and their application to problems of the natural and social sciences. Consideration of the relations between logic and problems of value. Open to freshmen. *Three semester hours.* Mr. Beck.

11b. PROBLEMS OF PHILOSOPHY.
Nature and method of philosophy. Application of philosophical method to contemporary personal and social problems. Detailed analysis of some typical problems in various fields of philosophy. Open to freshmen. *Three semester hours.* Mr. Beck.

Philosophy 12 series is organized in three semester-courses, I, II and III.

121a. HISTORY OF ANCIENT PHILOSOPHY I.
Movements of philosophical thought from their origins with the early Greeks through the medieval period. *Three semester hours.* Mr. White.

122b. HISTORY OF MODERN PHILOSOPHY II.
Major thinkers and philosophical movements from the beginnings of the modern period in Descartes to the 19th century. Prerequisite: one half-course in philosophy or History 10. *Three semester hours.* Mr. White.

123a. HISTORY OF RECENT PHILOSOPHY III.
Recent developments in philosophy, with emphasis on the historical roots of contemporary thought. Prerequisite: Philosophy 122b. *Three semester hours.* Mr. White.

13a. PROBLEMS OF ETHICS. Not offered, 1965-66.
Consideration of important ethical theories to acquaint the student with problems and scope of ethics and to aid him in the formulation of an ethical outlook. Offered in alternate years. Open to juniors and seniors. *Three semester hours.* Mr. Beck.

13b. ESTHETICS.
The nature of art, the characteristics of esthetic experience, and the relation of art to the human enterprise as a whole. Special reference is made to representative figures in contemporary philosophy. Open to juniors and seniors. *Three semester hours.* Mr. White.

14a. SOCIAL PHILOSOPHY.
Principles underlying social structure and functions. Examination of the goals, purposes, norms and ideals of social process, and the relation of that process to the individual good. Offered in alternate years. Open to juniors and seniors. *Three semester hours.* Mr. Beck.

14b. HISTORY OF AMERICAN PHILOSOPHY. Not offered, 1965-66.
Survey of important philosophical ideas in America with emphasis on their relationship to American experience. *Three semester hours.* Mr. Beck.

15b. PHILOSOPHY OF RELIGION. Not offered, 1965-66.
The nature of religion as revealed by an examination of the history of world religions and representative types of contemporary religious philosophy. Open to juniors and seniors. Prerequisite: one half-course in philosophy. *Three semester hours.* Mr. White.

201-4. SEMINAR IN PHILOSOPHY.
Advanced study of topics of central importance to philosophy. Prerequisites: two year-courses in philosophy, including 121 and 122. *Three semester hours each semester.* Staff.

HONORS IN PHILOSOPHY.
Advanced individual study of philosophic problems. Honors includes the preparation

of an acceptable thesis and a comprehensive examination. Prerequisite: consent of the department. *Normally, six semester hours.* Staff.

EDUCATION 290b. PHILOSOPHY OF EDUCATION.
Description offered in the department statement under Education.

Physics

DEPARTMENT FACULTY

Roy S. Anderson, Ph.D., *Professor of Physics, Department Chairman*
Earl E. Hays, Ph.D., *Associate Professor (affiliate) of Physics*
Juergen Heberle, Ph.D., *Associate Professor of Physics*
John A. Davies, Ph.D., *Assistant Professor of Physics*
Roger P. Kohin, Ph.D., *Assistant Professor of Physics*

UNDERGRADUATE PROGRAM

The department offers courses to students wishing to major in physics. While emphasis is placed on preparation for graduate study, the major will also assure adequate training for teaching or professional work in physics.

The major includes Physics 101, 150a, 160b, 200, 206a and 207b, Mathematics 13, six additional semester hours in mathematics, and six semester hours in chemistry, usually Chemistry 11. Students preparing for graduate work in physics are urged to register for one course in mathematics each year and to elect Physics 202a, 203b and 208b. It is recommended that the college language requirement be satisfied by either German or Russian.

Physics 101 and Mathematics 13 are the normal prerequisites for all advanced courses in physics. Freshmen normally register for Physics 11, but may be admitted directly to Physics 101 by passing an advanced placement examination.

A student in the Honors Program must submit to the department a thesis based on his honors research and pass a comprehensive examination in physics. Recommendation for Honors in Physics is determined by the quality of this thesis and the performance of the student on the comprehensive examination in physics. An Honors candidate must maintain an overall B— average in physics and mathematics courses.

Since 1962 the National Science Foundation, through its Undergraduate Science Education Program, has provided students with summer stipends which make possible research on individual problems.

Attention is directed to courses, particularly in nuclear physics, mathematics and electrical engineering, available for credit at the Worcester Polytechnic Institute.

GRADUATE PROGRAM

Graduate studies are offered leading to the degree of Master of Arts. In addition, the Departments of Chemistry and Physics jointly administer a program leading to the degree of Doctor of Philosophy in Chemical Physics.

Each graduate student in physics must pass a comprehensive examination in physics before he is recommended for candidacy for a graduate degree. This examination, at the upper-class undergraduate level, consists of a four hour written examination in each of the fields of mechanics, electricity and magnetism, and modern physics. It is given early in September and April of each year.

Departmental research is principally concerned with atomic, molecular and solid state physics. Structural and electric and magnetic properties are studied experimentally using electron spin resonance techniques. Theoretical research is offered in atomic and solid state physics. Research in geomagnetism and oceanography has been instituted in cooperation with the Woods Hole Oceanographic Institution.

Students interested in the Chemical Physics program should write to either the head of the Chemistry or Physics department in order to obtain information concerning degree requirements.

COURSES

11. General Physics.

The principles of mechanics, heat wave motion, electricity, and atomic and nuclear physics. Three lectures and one laboratory per week. Prerequisite: consent of the instructor is required in the absence of two years of high school algebra and trigonometry, or the equivalent. Indivisible course, except by consent of the instructor. *Four semester hours each semester.* Mr. Kohin.

101. Intermediate Physics.

Intermediate mechanics and electricity, using vector analysis. Mechanics: the statics and dynamics of particles, systems of particles and rigid bodies. Electricity: electric and magnetic fields and potentials. Direct, alternating and transient currents. Circuits and circuit elements. Three lectures and one laboratory per week. Required of physics majors. Prerequisite: Mathematics 12. *Four semester hours each semester.* Mr. Anderson, Mr. Hays.

150a. Mechanics.

Advanced methods in mechanics, with emphasis on the motion of rigid bodies. D'Alembert's principle and Lagrange's equations. Required of physics majors. Prerequisite: Physics 101 or consent of the instructor. *Three semester hours.* Mr. Davies.

160b. Electromagnetism.

The mathematical theory of electricity and magnetism. Fields and potentials. Maxwell's equations. Electromagnetic waves. Required of physics majors. Prerequisite: Physics 101 or consent of the instructor. *Four semester hours.* Mr. Davies.

200. Advanced Physical Measurements.

Laboratory in atomic, molecular, nuclear and solid-state physics. Three hours each week, throughout the year. Required of physics majors. *Two semester hours.* Mr. Kohin.

202a. Thermodynamics and Kinetic Theory.

Not offered, 1965-66.

The laws of thermodynamics, the kinetic theory of gases, and an introduction to statistical mechanics. Prerequisite: Mathematics 13. Offered in alternate years. *Three semester hours.* Mr. Anderson.

203b. Physical Optics.

Not offered, 1965-66.

The phenomena of diffraction, interference and polarization of light as explained by the electromagnetic theory. Three lectures and one laboratory per week. Prerequisite: Mathematics 13. Offered in alternate years. *Four semester hours.*

205a. Electronic Devices and Circuits.

Principles of electron tubes and transistors, with emphasis on design of electronic circuits. Three lectures and one laboratory per week. Prerequisite: Physics 101 or consent of the instructor. Offered in alternate years. *Four semester hours.* Mr. Anderson.

206a. MODERN PHYSICS.
An introduction to the quantum nature of molecules, atoms and nuclei. Special relativity. The old quantum theory. The correspondence principle. Wave-particle duality. The uncertainty principle. The wave equation. Required of physics majors. Prerequisite: Physics 160b and Mathematics 13 or consent of the instructor. *Three semester hours.* Mr. Davies.

207b. QUANTUM PHYSICS.
An introduction to quantum wave mechanics. Solutions of the Schrodinger equation. Operator techniques. Angular momenta. Approximation methods. Spectroscopy. Required of physics majors. Prerequisite: Physics 206a. *Three semester hours.* Mr. Kohin.

208b. INTRODUCTION TO THE SOLID STATE.
Crystal structure: symmetry and space groups. Chemical bonding: ionic and covalent crystals. Thermal and elastic properties. The band theory of metals and semi-conductors. Dielectric and magnetic properties. Low temperature properties, including superconductivity. Prerequisite: Physics 101 and Mathematics 13 or consent of the instructor. Offered in alternate years. *Three semester hours.* Mr. Anderson.

218. PHYSICS AND THE EARTH SCIENCES. Not offered, 1965-66.
The application of physics to problems in oceanography, seismology, and the atmosphere, with emphasis on the physics problems common to all. Selected readings are utilized. *Four semester hours each semester.* Mr. Hays.

230. SPECIAL TOPICS IN PHYSICS.
Independent studies in physics to provide for special needs. *Three or four semester hours each semester.* Staff.

235. HONORS.
Independent experimental or theoretical research in physics. *Three semester hours.* Staff.

301. ADVANCED MECHANICS.
Lagrangian and Hamiltonian formulations. Kinematics and dynamics of rigid bodies. Special relativity. Canonical transformations. Hamilton-Jacobi theory. Statistical mechanics. *Four semester hours each semester.* Mr. Heberle.

304. ELECTRODYNAMICS. Not offered, 1965-66.
Maxwell's equations. Scalar, vector and retarded potentials. Electromagnetic radiation. Boundary value problems. *Four semester hours.* Mr. Kohin.

305. QUANTUM MECHANICS. Not offered, 1965-66.
Wave mechanics and the Schrodinger equation. Stationary and time-dependent approximation methods. The matrix formulation. Scattering theory. *Eight semester hours.* Mr. Davies.

307. THEORY OF THE SOLID STATE. Not offered, 1965-66.
Application of quantum mechanics and group theory to solids. Thermal, electric, magnetic, and optical properties. Energy bands and their structure. Prerequisite: Physics 208a and 305. *Four semester hours.*

308. THEORY OF ATOMIC AND MOLECULAR SPECTRA. Not offered, 1965-66.
The electronic configuration of atoms: the Pauli principle and the building-up principle. Fine structure and the spinning electron. The Zeeman and Paschen-Back effects. Nuclear effects: hyperfine structure. The structure and properties of molecules as revealed by rotational, vibrational, and electronic spectra. Covalent and ionic bonds. Prerequisite: Physics 305 or consent of instructor. *Four semester hours.* Mr. Kohin.

309. MAGNETIC RESONANCE. Not offered, 1965-66.
The theory of the electron spin and nuclear magnetic resonance experiments, particularly in solids. The spin Hamiltonian and the magnetic interaction between particles. Chemical bonds and their description by the molecular orbital method. Prerequisite: Physics 308. *Four semester hours.* Mr. Kohin.

330. CURRENT PROBLEMS IN PHYSICS.
A specific topic in experimental physics is considered at the research level. Topics are selected on the basis of current interest. *Variable credit.* Staff.

335. TOPICS IN THEORETICAL PHYSICS.
An area of theoretical physics, chosen principally for students conducting theoretical research. Topics selected, as required, to emphasize special research areas or methods. *Variable credit.* Staff.

340. SEMINAR.
Seminars on various topics of contemporary interest are offered each year. Emphasis is on discussions of recent literature and on the presentation of department research. *Two semester hours.* Staff.

350. RESEARCH.
Variable credit. Staff.

Psychology

DEPARTMENT FACULTY

Seymour Wapner, Ph.D., *G. Stanley Hall Professor of Genetic Psychology, Department Chairman*
Tamara Dembo, Ph.D., *Professor of Psychology*
Bernard Kaplan, Ph.D., *Professor of Psychology*
Morton Wiener, Ph.D., *Professor of Psychology*
Clemens E. Benda, M.D., *Professor (affiliate) of Psychology*
Norman Geschwind, M.D., *Professor (affiliate) of Psychology*
Harold Goodglass, Ph.D., *Professor (affiliate) of Psychology*
David Moriarty, M.D., *Professor (affiliate) of Psychology*
Leslie Phillips, Ph.D., *Professor (affiliate) of Psychology*
Joseph Weinreb, M.D., *Professor (affiliate) of Psychology*
Robert W. Baker, Ph.D., *Associate Professor of Psychology*
Roger Bibace, Ph.D., *Associate Professor of Psychology*
Walter H. Crockett, Ph.D., *Associate Professor of Psychology*
Gordon T. Gwinn, Ph.D., *Associate Professor of Psychology*
Donald M. Krus, Ph.D., *Associate Professor of Psychology*

Sebastiano Santostefano, Ph.D., *Associate Professor of Psychology*
Joachim F. Wohlwill, Ph.D., *Associate Professor of Psychology*
Herbert Lipton, Ph.D., *Assistant Professor (affiliate) of Psychology*
Donald Broverman, Ph.D., *Lecturer in Psychology*
Juris Draguns, Ph.D., *Lecturer in Psychology*
Edward L. Klaiber, M.D., *Lecturer in Psychology*
Anthony Varjabedian, M.D., *Lecturer in Psychology*
William Vogel, Ph.D., *Lecturer in Psychology*
Peter H. Wolff, M.D., *Lecturer in Psychology*
Melvin Barton, Ph.D., *Consultant to Psychological Clinic*
Polly Deweese, M.S., *Consultant to the Psychological Clinic, Psychiatric Social Worker*
Victor H. Pentlarge, M.D., *Consultant to the Psychological Clinic, Psychiatrist*
Bernard P. Rosenblatt, Ph.D., *Consultant to the Psychological Clinic*
Malcolm Sills, M.D., *Consultant to the Psychological Clinic*
Howard J. Slepian, Ph.D., *Consultant to the Psychological Clinic*

UNDERGRADUATE PROGRAM

The department offers courses for students majoring in psychology, majors in allied fields and students wishing an orientation to the field of psychology for general cultural development.

Psychology 11 is prerequisite to all other psychology courses. Majors are required to take Psychology 11 and a minimum of two courses in the Experimental Psychology grouping (Psych. 201a, 203a or 203b, 204a or 204b, 210b, 236a). Of the two courses at least one must be 203a (b), or 204a (b). Permission of the instructor is required for each course in the Experimental Psychology grouping. In addition, each of these courses requires Psychology 160b and 161a or its equivalent; this requirement may be waived with permission of the instructor. Students preparing for graduate work should obtain a reading knowledge of French and German.

GRADUATE PROGRAM

The department admits to graduate work only those students who plan to enroll in the Ph.D. program on a full-time basis. A Master of Arts degree, based on an experimental thesis, ordinarily completed within the first two years of graduate work, is a requirement for admission to candidacy for the Ph.D. degree.

Master of Arts: The customary program is five courses, including experimental psychology, statistical methods and three additional courses, supplemented by the writing of a thesis in the area of special interest.

Doctor of Philosophy: The student is required to pass with distinction five courses during the first year of graduate study and a minimum of four courses during the second year. The University language requirement must be met by a knowledge of French, German or Russian. He is required, normally at the end of the second year, through written examination, to demonstrate his competence in psychology as a whole and in an area of specialization. Every graduate student must take part in the Teaching Apprenticeship Program as a requirement for the Ph.D. degree. In addition, the student is required to demonstrate his ability to conduct independent research as evidenced by the presentation of an acceptable dissertation. Research for the dissertation should normally be completed during the fourth year at the University; however, the length of the program will vary depending upon individual circumstances. At a final oral examination a student is required to defend his dissertation and to show his competence in the general field of psychology and in his area of specialization.

The overall aim of the graduate program is to provide the student with a general, integrated background covering the various areas of psychology. Within this emphasis more specialized training—with special stress on experimental analysis—is available in the following areas: perception, learning, thinking and problem-solving, language, social, and personality.

There are also three more formalized programs which provide specialized training in the areas of Clinical, Developmental and Rehabilitation Psychology.

Clinical Psychology Program. The department offers a four-year A.P.A.-approved program in clinical psychology leading to the degree of Doctor of Philosophy. Beyond the standards of proficiency in the general field of psychology expected of all students, the student in the Clinical Program will be required to demonstrate special mastery in the understanding of concepts in the clinical area and in the use of clinical methods. One year of internship is included in this four-year program. Provision is made for a wide variety of practical experiences in cooperating institutions, clinics and agencies. There are over 20 institutions and agencies in Worcester, Boston, Providence and surrounding areas which cooperate in providing such practicum and research facilities. In addition to the one-year internship, all students in the Clinical Program obtain a variety of practicum experiences in the Clark University Psychological Clinic throughout their enrollment in the graduate program. For further information, write to the director of the program: *Dr. Morton Wiener.*

The Psychological Clinic, directed by *Dr. Roger Bibace,* is operated in connection with the Clinical Psychology Program. For further information concerning the clinic, see that section in the catalog.

Developmental Psychology Program. This program is designed to train students in the comparative and experimental analysis of behavioral development. It emphasizes not only the study of human development over a wide age range, but also stresses the application of developmental principles, concepts and methods to problems of general psychology, psychopathology, social psychology, etc. For further information, write to the director of the program: *Dr. Joachim F. Wohlwill.*

Rehabilitation Research Training Program. In conjunction with all other areas of specialization, rehabilitation research training is available. Such training normally begins after the first two years of graduate work. This training is designed to prepare students for investigation of psychological problems as they occur in everyday life. Emphasis on development of novel techniques and concepts is a main feature of the training. An apprenticeship-practicum during which the various phases of research in real-life settings are examined under the guidance of staff members is an integral part of the program. This program is especially pertinent to those who wish to work with handicapped people. For further information, write to the director of the program: *Dr. Tamara Dembo.*

Financial Aid. In addition to University scholarships, fellowships, teaching assistantships, and stipends, the department has available such forms of financial support as United States Public Health Service and Vocational Rehabilitation Administration training stipends, Veterans Administration assistantships and stipends, and research assistantships.

THE HEINZ WERNER INSTITUTE OF DEVELOPMENTAL PSYCHOLOGY

Associated with the department is the Heinz Werner Institute of Developmental Psychology, which has three aims: first, to integrate various research programs dealing with developmental problems; second, to bring to Clark University scholars, teachers, and research workers from disciplines for which developmental problems are pertinent such as anthropology, biology, and certain areas of medicine; third, to train research workers on post-doctoral levels in the comparative-developmental approach to behavior. Information concerning post-doctoral work at the Institute may be obtained by writing to *Dr. Bernard Kaplan*.

COURSES

11a. GENERAL PSYCHOLOGY.
Introduction to the principles of human behavior. *Three semester hours.* Mr. Wapner.

11b. GENERAL PSYCHOLOGY.
Introduction to the principles of human behavior. *Three semester hours.*
Mr. Wapner and Staff.

103b. THE ABNORMAL PERSONALITY.
Development of the abnormal personality and a survey of the major types of abnormal behavior. Prerequisite: Psychology 172a. *Three semester hours.* Mr. Wiener.

150a. INTRODUCTION TO CHILD PSYCHOLOGY: Physical and Intellectual Development.
The normal development of the child from infancy up to adolescence, with emphasis on the areas of physical and motor development, cognitive processes and language, and emotional and fantasy life. *Three semester hours.* Mr. Wohlwill.

150b. INTRODUCTION TO CHILD PSYCHOLOGY: Personality and Social Development of the Child.
The development of the child's personality and interpersonal behavior, in relation to family, peer group and culture. *Three semester hours.* To be announced.

160b. INTRODUCTION TO QUANTITATIVE METHODS IN PSYCHOLOGY.
Problems of psychological measurement and statistical evaluation of psychological data, at a descriptive level. (To be taken by all prospective majors in their sophomore year.) *Three semester hours.* Mr. Wohlwill.

161a. ADVANCED STATISTICAL METHODS IN PSYCHOLOGY. Not offered, 1965-66.
Major principles and techniques of correlational analysis and statistical inference. (To be taken by all majors in their junior year.) *Three semester hours.* Mr. Wohlwill.

170b. SOCIAL PSYCHOLOGY.
The role of social factors in the behavior of individuals and of groups, including such topics as attitudes, prejudice, leadership and personality and culture. *Three semester hours.* To be announced.

172a. PSYCHOLOGY OF PERSONALITY.
The various theoretical approaches to the study of personality, with emphasis on trait theories, typologies, field theory and psychoanalysis. Also considered are the determinants of personality development and methods of appraising personality. *Three semester hours.* Mr. Draguns.

201a. LABORATORY RESEARCH IN SOCIAL PSYCHOLOGY.
Investigation of such phenomena as small group interaction, interpersonal perception, and attitude measurement and change. Prescribed experiments will be conducted in a series of problems, culminating in an original investigation and report of some problems of interest to the student. Prerequisite: Psychology 160b, 161a and 170b. *Three semester hours.* Mr. Crockett.

202a. PSYCHOLOGY OF THINKING.
Types of thought processes and methods of investigating them, with emphasis on concept formation, imagination, creative thought, reasoning and problem solving. *Three semester hours.* Mr. Gwinn.

203a, b. LABORATORY RESEARCH IN PERCEPTION.
The Laboratory Course in Perception will include investigation of sensory and perceptual phenomena in a variety of sense modalities. Laboratory experience will involve a progression from prescribed small experiments to designing experiments in restricted areas, and, finally, original experimentation in an area of special interest to the student. Theoretical and methodological issues will be considered in the context of specific experimentation. Prerequisite: Psychology 160b and 161a. *Three semester hours.* Mr. Krus.

204a, b. LABORATORY RESEARCH IN LEARNING.
Discussions of various theories of learning and their application to empirical findings. Prerequisite: Psychology 160b and 161a. *Three semester hours.* Mr. Gwinn.

209a. DEVELOPMENTAL APPROACHES TO BEHAVIOR.
A critical examination of presuppositions, methods, concepts and empirical inquiries of those concerned with the development of behavioral systems. Implications of developmental conceptualization for all of the life sciences will be discussed. Psychological theories of Freud, Piaget and Werner will be given special emphasis. *Three semester hours.* Mr. Kaplan.

209b. DEVELOPMENTAL APPROACHES TO BEHAVIOR. Not offered, 1965-66.
A seminar on selected theoretical and methodological issues pertaining to the developmental analysis of behavior. *Three semester hours.* Mr. Kaplan.

210b. LABORATORY RESEARCH IN DEVELOPMENTAL PSYCHOLOGY.
The Laboratory Course in Developmental Psychology will be aimed at giving students direct experience with the phenomena described by Heinz Werner and Jean Piaget. The course will exemplify concepts such as syncresis in different populations (young children, schizophrenics, mentally retarded, etc.) and at different developmental levels, for instance, at the level of action or of thought. (Students are required to participate in eliciting and classifying cognitive processes, and conducting an original experiment.) Prerequisite: Psychology 160b, 161a, and 209a. *Three semester hours.* Mr. Bibace.

220a. MATHEMATICAL APPROACHES TO PSYCHOLOGY. Not offered, 1965-66.
Intensive analysis of several mathematical models used in psychology. Offered in alternate years. Prerequisite: Mathematics 12 or consent of the instructor. *Three semester hours.* Mr. Crockett.

222a. PHYSIOLOGICAL PSYCHOLOGY.
A consideration of physiological mechanism of relevance to psychological problems. *Three semester hours.* To be announced.

225b. Seminar in Rehabilitation Psychology.
Psychological problems in everyday life situations, such as problems of physically disabled, mentally retarded, the aged, the poor, etc., will serve as topics. The primary focus is interpersonal relationships and value problems. *Three semester hours.* Miss Dembo.

226b. Seminar in Individual Differences.
An examination of the evidence for and explanation of individual differences in both cognitive functioning and personality. Particular attention will be given to the problem of sex differences. *Three semester hours.* To be announced.

231a. Seminar in the History of Psychology. Not offered, 1965-66.
Historical development of theories and methods in psychology. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Gwinn.

232b. Seminar in Modern Psychological Theories. Not offered, 1965-66.
Comparisons and evaluations of various modern theories in psychology. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Gwinn.

236a. Laboratory Research in Child Psychology.
Survey of research methods used in the study of children, with particular emphasis on observational techniques. Lecture: 2 hours; Laboratory: 3 hours; Prerequisite: Psychology 160b, 161a, 150a or 150b. *Three semester hours.* To be announced.

297. Directed Readings in Psychology.
Independent study by majors for students not doing honors work. *Three semester hours each semester.* Staff.

298. Honors in Psychology: Junior year.
Three semester hours each semester. Staff.

299. Honors in Psychology: Senior year.
Three semester hours each semester. Staff.

301. Experimental Method in Psychology.
Experimental Method considered generally and in its application to problems of perception. Lecture: 2 hours; Laboratory: to be arranged. Mr. Wapner.

302. Statistical Methods.
Descriptive statistics, statistical inference and experimental design in psychology. Mr. Crockett.

304a. Physiological Aspects of Behavior, I.
Neuro-anatomy as related to behavior. Offered in alternate years. Mr. Varjabedian.

305b. Physiological Aspects of Behavior, II.
Neurophysiological aspects of behavior. To be announced.

306b. Psychobiological Foundations of Behavior. Mr. Geschwind.

310. Apprenticeship in Rehabilitation: Introductory. Miss Dembo.

311. Clinical Methods, I.
Theory, administration, scoring and interpretation of clinical-psychological tests, objective and projective, with special emphasis on analysis of cognitive functioning, with practicum. Mr. Baker.

312a. THEORIES OF DEVIANT BEHAVIOR.
Deviant behavior as viewed by various theories. Clinical and experimental evidence is examined. Mr. Bibace.

313b. PRINCIPLES AND CONCEPTS UNDERLYING PSYCHOLOGICAL TESTS.
Problems of psychological assessment by non-projective tests. Mr. Broverman.

315a. ADVANCED CHILD PSYCHOLOGY: GENERAL-EXPERIMENTAL.
The experimental study of basic processes of child behavior (perception, learning, thinking, etc.) and of major dimensions of developmental change. Mr. Wohlwill.

315b. ADVANCED CHILD PSYCHOLOGY: PERSONALITY-SOCIAL.
Study of the child's personality and social development with particular attention to research concerning itself with antecedent-consequent relationships. To be announced.

316a. RESEARCH METHODS IN THE STUDY OF CHILDREN.
Survey of methods used in the study of children, with emphasis on the measurement of personality characteristics and on observational techniques. Offered in alternate years. To be announced.

316b. METHODOLOGICAL PROBLEMS IN DEVELOPMENTAL PSYCHOLOGY.
Questions of scientific method, research strategy, quantitative analysis, etc., arising in developmental research, with particular reference to the study of developmental change in behavior. Offered in alternate years. Mr. Wohlwill.

317a. BEHAVIOR IN INFANCY.
Offered in alternate years. Mr. Wolff.

318. SEMINAR IN PSYCHOLOGY OF INTERPERSONAL RELATIONSHIPS AND REHABILITATION. Not offered, 1965-66.
Value problems pertinent to interpersonal relations will be discussed, including value possessions, value losses, regaining of values and adjustment to value losses. Offered in alternate years. Miss Dembo.

319. SEMINAR IN TOPOLOGICAL PSYCHOLOGY AND REHABILITATION.
Offered in alternate years. Miss Dembo.

320. ADVANCED SEMINAR ON ORGANISMIC-DEVELOPMENTAL APPROACHES TO BEHAVIOR.
Basic categories of the organismic-developmental approach to life sciences, with examination of the application of these categories to a wide range of problem areas in psychology. Mr. Kaplan.

321. HIGHER MENTAL PROCESSES. Not offered, 1965-66.
Theory and experimental research pertaining to such functions as remembering, classifying, problem-solving, reasoning, concept-forming, symbolization, etc. Mr. Kaplan.

323. PSYCHOLOGY OF LEARNING.
Theoretical viewpoints and experiments in the field of learning. Mr. Gwinn.

324. THEORIES OF PERSONALITY. Not offered, 1965-66.
Comparison of various theoretical approaches to the study of personality. Mr. Wiener.

325. ADVANCED SOCIAL PSYCHOLOGY.
Intensive analysis of various theoretical systems in social psychology. Mr. Crockett.

326b. THEORY OF PSYCHOLOGICAL SCALING. Not offered, 1965-66.
Analysis of mathematical approaches to psychological scaling. Prerequisite: Psychology 220a. Offered in alternate years. Mr. Crockett.

327a. CLINICAL AND EXPERIMENTAL BEHAVIORAL ASSESSMENT OF CHILDREN.
Demonstration and theoretical consideration of various clinical and experimental methods useful in assessing personality functioning and coping in children. The viewpoint of psychoanalytic ego psychology is emphasized. Mr. Santostefano.

327b. THE BIOLOGICAL ASPECTS OF HUMAN DEVELOPMENT. Mr. Klaiber.

331. CLINICAL METHODS, II.
Application of various clinical methods in the assessment of personality. Mr. Goodglass.

332b. THEORIES OF PSYCHOTHERAPY.
Comparison of various theoretical approaches to problems of psychotherapy. Mr. Wiener.

337a. SEMINAR ON PROBLEMS IN CHILD AND DEVELOPMENTAL PSYCHOLOGY. Mr. Wohlwill.

346b. DEVELOPMENTAL PSYCHOLOGY AND PSYCHOANALYSIS.
Offered in alternate years. Mr. Bibace.

350. APPRENTICESHIP IN REHABILITATION: ADVANCED. Miss Dembo.

351. CLINICAL METHODS, III.
Integration of various methods in assessment of personality and behavior. Mr. Phillips.

352. CLINICAL METHODS, IV.
Application of theoretical principles to psychotherapy. Mr. Weinreb.

356b. PSYCHOPATHOLOGY OF CHILDHOOD. Not offered, 1965-66.
Offered in alternate years. Mr. Benda.

364b. SELECTED PROBLEMS IN PSYCHOPHARMACOLOGY. Mr. Krus and Visiting Staff.

380. RESEARCH IN PSYCHOLOGY.
Direction of individual students in their research. Staff.

381. READINGS IN PSYCHOLOGY.
Critical analysis of literature in areas related to individual research. Staff.

385. PARTICIPATION IN PSYCHOLOGICAL CLINIC, I.
Introduction and individual intelligence testing. Mr. Bibace, Mr. Lipton, Mr. Slepian.

386. PARTICIPATION IN PSYCHOLOGICAL CLINIC, II.
Personality evaluation by tests. Mr. Bibace, Mr. Lipton, Mr. Slepian.

387. PARTICIPATION IN PSYCHOLOGICAL CLINIC, III.
Psychotherapy.
Mr. Bibace, Mr. Moriarty, Mr. Pentlarge, Mr. Santostefano, Mr. Wiener, Mr. Weinreb.

388. PARTICIPATION IN PSYCHOLOGICAL CLINIC, IV.
Personality evaluation by interview; psychotherapy.
Mr. Bibace, Miss Deweese, Mr. Moriarty, Mr. Pentlarge,
Mr. Santostefano, Mr. Wiener, Mr. Weinreb.

389. INTERNSHIP. Staff.

DEPARTMENTAL COLLOQUIUM Visiting Lecturers.

WORKSHOPS

Conducted annually in such areas as comparative-animal psychology, scaling theory, factor analysis, rehabilitation, cultural anthropology, ethnolinguistics, pathology of language. Visiting Lecturers.

Romance Languages

DEPARTMENT FACULTY

J. Richard Reid, Ph.D., *Professor of Romance Languages, Department Chairman*
Raymond E. Barbera, Ph.D., *Associate Professor of Romance Languages*
J. Fannin King, M.A., *Associate Professor of Romance Languages*
Theodore Nicol, Ph.D., *Associate Professor of Romance Languages*
Marian M. Walter, Ph.D., *Assistant Professor of Romance Languages*
H. Allen Whartenby, Ph.D., *Assistant Professor of Romance Languages*
Richard A. Ray, M.A., *Instructor in Romance Languages*

UNDERGRADUATE PROGRAM

The department offers courses in the languages and literatures of France, Spain and Spanish America. These courses fall into two groups: lower level—French and Spanish 11 and 12, and upper level—all other Romance language courses.

In the lower level the primary aim is the mastery of the skills of communication in a language, with a view to its effective use for a variety of possible ends. These skills include reading, writing, speaking and understanding as well as what may be called basic literacy in the language.

In the upper level, the primary aim is an acquaintance in depth with a foreign civilization, principally through a study of its literature but with attention also to other aspects of its culture and to the further perfection of linguistic competence. The courses in literature are complemented by others in civilization and in advanced composition, conversation and phonetics.

A major in Romance languages must comprise:

1. Twenty-four semester hours to be chosen from French 137, 141, 147a, 151a, 152a, 153b, 154b and 250; Spanish 137, 141, 142a, 143a, 144b, 145b and 250; Romance Languages 248b.
2. French 113 or the equivalent.
3. History 10, or the equivalent, normally to be completed by the end of the sophomore year.
4. At least 6 semester hours, to be approved by the department, in non-Romance literature.

Students majoring in Romance languages are expected to acquire a thorough knowledge of either French or Spanish and are urged to acquire a competent knowledge of the other, both in language and literature.

Students intending to major in Romance languages should consult the department chairman. An honors program in Romance languages is available to qualified upperclassmen.

LANGUAGE LABORATORY

A modern electronic language laboratory is available for class instruction, independent study and self-appraisal. Use of the laboratory is required of students in the lower level and "137" courses in French and Spanish, and available to others. See the section on "Tuition and Other Charges" for the laboratory fee.

DEPARTMENTAL INTERNSHIP PROGRAM

The department cooperates with the Department of Education in a graduate program of preparation of teachers of Romance languages, leading to the degree of Master of Arts in Education. Participants carry appointment as Teaching Assistant Scholars and as Departmental Interns in Romance languages. Normally requiring two years, the program consists of half-time study in education and Romance languages and literatures, and half-time devoted to supervised teaching and other assistance to the Department of Romance Languages.

COURSES IN FRENCH

11. ELEMENTARY.

A course for beginners, including the elements of grammar, pronunciation and conversational patterns, graded readings and the writing of simple French. Three class periods and one to two hours in the language laboratory per week. Laboratory fee. Open to freshmen. Indivisible course. *Three semester hours each semester.* Staff.

12. INTERMEDIATE.

Review of the elements, and further development of basic literacy and of a balanced mastery of all the communication skills; intensive and extensive reading. An intensive oral approach is used in the classroom. Three class meetings and one to two hours in the language laboratory weekly. Laboratory fee. Prerequisite: French 11 or equivalent skill in the language to be determined by a placement test. Open to freshmen. Indivisible course. *Three semester hours each semester.* Staff.

113. INTRODUCTION TO FRENCH CIVILIZATION.

A selective survey of the history, art, literature and music of France, from the Middle Ages to modern times. An elementary knowledge of French is desirable but not required. Admission is subject to the approval of the instructor. For students who entered Clark before September, 1964, this course may be counted in fulfillment of the general requirement in fine arts. The course may not, however, be counted in fulfillment of the foreign language requirement. Offered in alternate years. *Three semester hours each semester.* Mr. Nicol.

131. (FORMERLY FRENCH 14) READINGS IN FRENCH LITERATURE.

A third-year course. The emphasis in the first semester is on reading as communication, with analysis and practice of the techniques of effective reading in French. The emphasis in the second semester is on an understanding of a number of novels and plays selected for their literary excellence and broad appeal. Prerequisite: French 12 or equivalent skill in the language, to be determined by a placement test. Open to freshmen. *Three semester hours each semester.* Mr. Nicol and Staff.

*137. (FORMERLY FRENCH 13) ORAL AND WRITTEN FRENCH.

The aim of this third year course throughout is the perfecting of skills in communication both oral and written. In the first semester, particular attention is given to the sounds of French and to its rhythm and melodic patterns. In the second semester, increasing attention is given to grammatical patterns and written French and to fluency in the spoken language. Conducted in French. Prerequisite: Grade of B— or higher in French 12, or equivalent skill in the language to be determined by placement test. Two regular class periods, one two-hour session and three half-hour periods in the laboratory per week. Laboratory fee. Admission is subject to the consent of the instructor. *Three semester hours each semester.* Mr. King.

*All courses whose numbers begin with 13, 14, or 15 satisfy the foreign language and literature requirement for the degree of Bachelor of Arts.

*141. (FORMERLY FRENCH 114) GENERAL VIEW OF FRENCH LITERATURE.
An interpretation of the main currents of French literature. Each period is studied by concentrating attention on a limited number of works and authors best bringing to focus the characteristics of the period. Conducted in French. Prerequisite: Grade of B— or higher in French 131 or 137, or the equivalent. *Three semester hours each semester.* Mr. King.

*147a. (FORMERLY FRENCH 123a) ADVANCED COMPOSITION AND STYLISTICS.
Introduction to the problems of stylistics with a study of selected grammatical topics. Conducted in French. Prerequisite: Grade of B— or higher in French 13b, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Nicol.

*151a. THE MIDDLE AGES AND THE RENAISSANCE.
Emphasis is upon developing an understanding of the philosophical, religious and social attitudes of the Middle Ages and the Renaissance, with due attention to the facts of literary history. Conducted in French. Prerequisite: Grade of B— or higher in French 141, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. King.

*152a. CLASSICISM. Not offered, 1965-66.
A study of outstanding literary works, drawn principally but not exclusively from the age of Louis XIV, to illustrate the esthetic and intellectual nature of the classical point of view as it persists in the French thought of various periods. Conducted in French. Prerequisite: Grade of B— or higher in French 141, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Nicol.

*153b. ROMANTICISM AND REALISM. Not offered, 1965-66.
A study of outstanding literary works, drawn principally but not exclusively from the late 18th and 19th centuries, to illustrate the esthetic and intellectual climates and the literary techniques generally described as romantic or realistic. Conducted in French. Prerequisite: Grade of B— or higher in French 141, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Nicol.

*154b. THE MODERN PERIOD.
A study of a few outstanding dramatists, novelists and poets to illustrate the highly varied literary attitudes characteristic of 20th century French literature. Conducted in French. Prerequisite: Grade of B— or higher in French 141, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Nicol.

*For French 151a, 152a, 153b and 154b a certain historical and analytical perspective such as is provided by French 141 is presupposed. These courses are planned so that they need not be taken in chronological order but may be taken at the student's convenience. Attention is given to the social forces and movements underlying the attitudes whose literary manifestations are under study.

ROMANCE LANGUAGES 248b. (FORMERLY ROMANCE LANGUAGES 124b) COMPARATIVE FRENCH AND SPANISH PHONOLOGY. Not offered, 1965-66.
The elements of general phonetics and structural phonology, followed by a detailed study of the sound-systems of French and Spanish, and practical application to pronunciation practice. Open to juniors, seniors and graduate students, with the consent of the instructor. Offered in alternate years. Mr. Reid

FRENCH 250. SPECIAL TOPICS IN FRENCH. Staff.

ROMANCE LANGUAGES 270. (EDUCATION 270) THE TEACHING OF ROMANCE LANGUAGES.
For complete description, see Education 270. *Three semester hours.* Mr. Reid and Staff.

ROMANCE LANGUAGES 271. (EDUCATION 271) THE TEACHING OF ROMANCE LANGUAGES.
Advanced. (See Education 271). *Three semester hours each semester.* Mr. Reid and Staff.

COURSES IN SPANISH

11. ELEMENTARY.
A course for beginners, including the elements of grammar, pronunciation and conversational patterns, graded readings and the writing of simple Spanish. Three class periods and one to two hours in the language laboratory per week. Laboratory fee. Open to freshmen. Indivisible course. *Three semester hours each semester.* Staff.

12. INTERMEDIATE.
A review of the elements and further development of basic literacy and of a balanced mastery of all the communication skills; intensive and extensive reading of texts dealing with Spain and Spanish America. An intensive oral approach is used in the classroom. Three class periods and one or two hours in the language laboratory per week. Laboratory fee. Prerequisite: Spanish 11 or equivalent skill in the language, to be determined by a placement test. Open to freshmen. *Three semester hours each semester.* Staff.

*131. (FORMERLY SPANISH 14) READINGS IN SPANISH AND SPANISH-AMERICAN LITERATURE.
A third-year course. The first semester is devoted to Spanish-American literature; the second semester to Spanish works. The emphasis in the first semester is on reading as communication, with analysis and practice of the techniques of effective reading in Spanish. The emphasis in the second semester is on the understanding of a number of major works of the literature of Spain. Prerequisite: Spanish 12 or the equivalent skill in the language, to be determined by a placement test. Open to freshmen. *Three semester hours each semester.* Mr. Reid.

*137. (FORMERLY SPANISH 13) ORAL AND WRITTEN SPANISH.
A third-year course. A rapid intensive review of grammar; the elements of phonetics; exercises in composition and pronunciation; conversational practice. Conducted in Spanish. Admission is subject to the approval of the instructor. Prerequisite: Grade of B— or higher in Spanish 12, or equivalent skill in the language, to be determined by a placement

test. Offered in alternate years. Two regular class periods, one two-hour session, and one to two hours in the laboratory per week. Laboratory fee. *Three semester hours each semester.* Mr. Barbera.

*All courses whose numbers begin with 13, 14, or 15 satisfy the foreign language and literature requirement for the degree of Bachelor of Arts.

*141. (FORMERLY SPANISH 114) THE LITERATURE OF SPAIN.
A general view of Spanish literature with emphasis on the origins and development of the novel and drama, culminating in the masterworks of the nineteenth century. Attention is given to political and cultural background. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours each semester.* Mr. Barbera.

*142a. EARLY SPANISH LITERATURE FROM THE *Poema de Mio Cid to the Celestina.* Not offered, 1965-66.
This course will emphasize the nature of Epic poetry, the first manifestation of "realism" in the literature of the Middle Ages and will culminate in the hybrid masterpiece, the *Celestina,* a combination of novel and drama, unique in the history of European literature. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Barbera.

*143a. CERVANTES.
This course will concentrate upon *Don Quixote* with excursions into other writings of Cervantes illustrating the changes in his literary development. Cervantes' debt to previous literary works will be studied. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours.*

*144b. THE DRAMA OF THE SIGLO DE ORO.
Besides studying the major figures such as Lope de Vega, Tirso de Molina, Alarcon and Calderon de la Barca, there will be some study of the origins of the drama in Spain. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours.*

*145b. THE MODERN NOVEL. Not offered, 1965-66.
A number of 19th century novels will be read. The 20th century will be represented by such outstanding novelists as Galdos (who bridges the 19th and 20th centuries), Unamuno, Valle-Inclan and Baroja. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Barbera.

ROMANCE LANGUAGES 248b. (FORMERLY ROMANCE LANGUAGES 124b) COMPARATIVE FRENCH AND SPANISH PHONOLOGY. Not offered, 1965-66.
For complete description, see Romance Languages 248b under Courses in French. Mr. Reid.

SPANISH 250. SPECIAL TOPICS IN SPANISH. Staff.

ROMANCE LANGUAGES 270. (EDUCATION 270) THE TEACHING OF ROMANCE LANGUAGES.
For complete description, see Education 270. Mr. Reid and Staff.

ROMANCE LANGUAGES 271. (EDUCATION 271) THE TEACHING OF ROMANCE LANGUAGES. Advanced. (See Education 271).

Russian

DEPARTMENT FACULTY

Larisa Quincy-Sorokin, M.A., *Assistant Professor of Russian*

UNDERGRADUATE PROGRAM

Courses are offered in Russian language and literature to provide a competent reading and speaking knowledge of the language essential for carrying on advanced study in many fields, to fulfill the language requirement for the degree of Bachelor of Arts and to provide an introduction to Russian civilization.

11. INTRODUCTORY RUSSIAN.
An introduction to the written and spoken language. Three class periods and three half-hour laboratory sessions per week. Laboratory fee. Open to freshmen. Indivisible course. *Three semester hours per semester.* Mrs. Sorokin.

12. INTERMEDIATE RUSSIAN.
Advanced Russian grammar. Continued emphasis upon reading and conversation. Three periods and three language laboratory sessions per week. Laboratory fee. Open to qualified freshmen. Indivisible course. *Three semester hours each semester.* Mrs. Sorokin.

13. ADVANCED RUSSIAN.
Intensive reading of contemporary and literary sources. Advanced composition and conversation. Indivisible course. *Three semester hours each semester.* Mrs. Sorokin.

179. SURVEY OF RUSSIAN LITERATURE.
Course provides a complete survey of Russian literature from its inception in the 11th century to the Revolution of 1917. Major trends in the development of the medieval literary tradition will be illustrated, leading into the "Golden Age" of Russian letters in the 19th century. Concentrated attention will be given to the evolution of the realistic tradition in Russia, culminating in the works of Tolstoy, Dostoyevsky, Chekhov and Gorky. Twentieth century literary movements of Symbolism, Acmeism and Futurism will be discussed leading into the material treated in the course on Soviet Literature 180 offered in alternate years. Given in English .Offered in alternate years. *Three semester hours each semester.* Mrs. Sorokin.

180. SOVIET LITERATURE. Not offered, 1965-66.
A study of those translated works which contribute to an understanding of Soviet society and contemporary Russian intellectual currents. Given in English. Offered in alternate years. *Three semester hours each semester.* Mrs. Sorokin.

Sociology

DEPARTMENT FACULTY

Philip G. Olson, Ph.D., *Associate Professor of Sociology, Acting Chairman*
Frederick W. Killian, LL.B., *Associate Professor of Sociology*
Maurice R. Stein, Ph.D., *Visiting Lecturer in Sociology*
Arthur Vidich, Ph.D., *Visiting Lecturer in Sociology and Anthropology*
Rogers P. Johnson, M.A., *Lecturer in Sociology*

UNDERGRADUATE PROGRAM

An undergraduate major in sociology is designed to provide the student with an understanding of the intellectual tradition which has focused on description and explanation of human society, its structure, organization, and process. Emphasis is on both theoretical aspects of society in general and specifically the nature of American society. Requirements for a major in sociology consist of 24 semester hours in sociology, including Sociology 11a and 29 (or 290), and 18 semester hours in related fields. Related fields are defined by the department and require departmental approval.

An honors program of independent study and research is available to qualified upperclassmen. Ordinarily a candidate will begin honors work in the second semester of the junior year by enrolling in Sociology 28.

GRADUATE PROGRAM

Graduate study leading to the Master of Arts degree is offered. The program emphasizes theory and research methods and the following substantive areas: Law and society, community and urban society. Field research as part of the thesis preparation is normally done under the program of research conducted by members of the department.

COURSES

F11a. Introduction to Sociology.
An examination of the basic concepts and theories of society as derived from the classic tradition in sociology and their application to an analysis of contemporary American society. *Three semester hours.* Mr. Olson.

F12a. Human Evolution. Not offered, 1965-66.
The evolution of man as a biological organism and the development of man's distinguishing feature: culture. The assessment of paleontological and archaeological evidence in an attempt to reconstruct the evolution of man and his culture. The reconstruction of human culture from the stone age to the Christian era: emphasis placed largely on the Middle East, Egypt, Crete, Mesopotamia, and Europe. *Three semester hours.* Mr. Olson.

F12b. Social Anthropology.
An analysis of primitive society with emphasis on social structure, including religion, kinship and economics. The relation between culture and personality and the processes of social change in the primitive world are explored. *Three semester hours.* Mr. Olson.

13a. Individual and Social Structure. Not offered, 1965-66.
An examination of the social contexts out of which personality types emerge; the development of the social mind and self; theories of interpersonal behavior and the presentation of self; the relation between individual behavior and social structures. An analysis of the role of history, society, and psychological factors in the development of personal identity. Prerequisite: either Sociology 11a, 12b, or Psychology 11. *Three semester hours.*

F14b. Social Organization.
Social structure of major social systems: government, business, education, religion. Also selected special systems: science, welfare, leisure. Emphasis on roles of bureaucracy, informal groups, social movements and publics in these systems. *Three semester hours.*
Mr. Johnson.

17a. AMERICAN MINORITY GROUPS.
Analysis of the major racial, ethnic and religious minorities in the U.S.A. Their structures, conflicts and changing relations with the dominant American culture. Social effects of alternative policies and strategies in contemporary minority group relations. *Three semester hours.* Mr. Johnson.

21a. SOCIOLOGICAL ANALYSIS.
The philosophical and logical premises underlying the collection and interpretation of empirical data and the extension of these to sociological contexts. A brief survey of the major styles of quantitative social investigation will be made: research design, survey analysis, logic of quantitative measurement techniques, and the questionnaire. Some time will be spent on community study and participant-observer techniques with an attempt to relate the qualitative data which come from these styles to quantitative data. Prerequisite: consent of the instructor. *Three semester hours.*

24a. THE COMMUNITY.
An analysis of community studies as the basis for understanding society, with particular reference to American society. The rise of central institutions and the transformation of community in twentieth century America: The links between community social structure and the total society. The historical decline of community and the emergence of pseudo-communities. The course will focus on a comparative analysis of the major American community studies. Prerequisite: Sociology 11a. *Three semester hours.* Mr. Olson.

25. LAW AND SOCIETY.
First semester: Law, the social order, power and control. The basis of the legal order and legal institutions. Second semester: The problem situation, change and current legal problems. Prerequisite: First semester must be taken in order to register for the second semester and consent of the instructor. *Three semester hours each semester.* Mr. Killian.

255. SOCIOLOGY AND LAW.
A study of the application of social theory and of sociological theory to the analysis of law and legal institutions. The background of "sociological jurisprudence" and of "legal realism" in the nineteenth century and the early twentieth century. Emphasis on the work of Ehrlich, Max Weber, Durkheim, Parsons, Evan, Pound, Sorokin, Maine, Pollock and Maitland, Hoebel, Llewelyn, Riesman, Jerome Frank, John Chipman Gray, Jerome Hall, and other Europeans and Americans. The second semester will include current trends in criminological theory. *Three semester hours each semester.* Mr. Killian.

26b. URBAN CULTURE.
The growth and development of urbanism in Western Civilization and its impact on civilization. An analysis of the complexities of urban life; the structural components and varieties of life styles found in American cities. The impact of urbanism on American society. Prerequisite: Sociology 11a. *Three semester hours.* Mr. Olson.

267b. CONTEMPORARY SOCIOLOGICAL ISSUES.
For advanced undergraduate and graduate students. An advanced analysis of sociological theory and field research. Prerequisite: consent of the instructor. *Three semester hours.*
Mr. Olson.

28. HONORS.
Three semester hours each semester. Staff.

29. SOCIAL THOUGHT AND SOCIOLOGICAL THEORY. Not offered, 1965-66.
The development of man's thought about society from early Greek and Roman civilizations to the present; and examination of European and American sociological theory. Divisible. Prerequisite: three semesters of sociology. *Three semester hours each semester.*

290a. CLASSICAL SOCIOLOGICAL THEORY.
An analysis of classical European theory, including Marx, Weber, Freud, Durkheim, Simmel and Mannheim, emphasizing the historical, dramatistic, systematic elements in their work. Prerequisites: four semesters of sociology and permission of the instructor. *Three semester hours.* Mr. Stein.

290b. CONTEMPORARY SOCIOLOGICAL THEORY.
An examination of the main theoretical and critical perspectives employed by American sociologists in their description and analysis of social life. The work of Parsons, Mills, Merton, Riesman, Goodman and others is evaluated in the light of the European tradition of social analysis and what it offers for an understanding of American society. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Vidich.

36. READINGS IN SOCIAL ANTHROPOLOGY.
One to three semester hours. Staff.

37. READINGS IN SOCIOLOGY.
One to three semester hours. Staff.

38. RESEARCH.
One to three semester hours. Staff.

380. RESEARCH SEMINAR.
Two semester hours. Staff.

39. THESIS.
Three semester hours. Staff.

390. THESIS SEMINAR.
Two semester hours. Staff.

DIRECTORIES

The Faculty

Members of the faculty and officers of instruction for 1965-66 are listed alphabetically with their titles, degrees and years at Clark University. Persons no longer on the faculty but who served during the previous year are included also.

President

Howard Bonar Jefferson, Ph.D., LL.D., L.H.D., Litt.D., President. A.B., Denison University, 1923; Ph.D., Yale University, 1929; LL.D., Denison University, 1948, Hillsdale College, 1952, Northwestern University, 1958; L.H.D., Colgate University, 1951, Assumption College, 1956; Litt.D., College of the Holy Cross, 1962. (1946-)

Emeriti

Leroy Allston Ames, A.M., Professor of English Literature, Emeritus. (1908-44)

Samuel J. Brandenburg, Ph.D., Professor of Economics and Sociology, Emeritus. (1923-50)

Jesse Lunt Bullock, Ph.D., Professor of Chemistry, Emeritus. (1926-59)

Loring Holmes Dodd, Ph.D., L.H.D., Professor of English and Art, Emeritus. (1910-49)

Robert Stanley Illingworth, A.M., Ed.M., Professor of Speech and Drama, Emeritus. (1931-58)

Homer Payson Little, Ph.D., LL.D., Dean of the College and Professor of Geology, Emeritus. (1922-54)

David Potter, Ph.D., Professor of Biology, Emeritus. (1924-59)

Percy Martin Roope, Ph.D., Professor of Physics, Emeritus. (1921-62)

Samuel Van Valkenburg, Ph.D., Professor of Geography, Emeritus. (1926-29, 1932-62)

Faculty and Officers of Instruction

Vernon Ahmadjian, Ph.D., Associate Professor of Botany. A.B., Clark University, 1952; A.M., 1956; Ph.D., Harvard University, 1960. (1959-)

Karl Oscar Emanuel Anderson, Ph.D., Professor of English. A.B., Harvard University, 1927; A.M., 1928; Ph.D., 1942. (1945-)

Roy Stuart Anderson, Ph.D., Professor of Physics. A.B., Clark University, 1943; A.M., Dartmouth College, 1948; Ph.D., Duke University, 1951. (1960-)

Karl John Richard Arndt, Ph.D., Professor of German. A.M., Washington University, 1928; Ph.D., The Johns Hopkins University, 1933. (1950-)

Robert William Baker, Ph.D., Associate Professor of Psychology, Dean of Students. A.B., Hobart College, 1947; Ph.D., Clark University, 1953. (1954-)

George Anthony Balko, Jr., M.B.A., Assistant Professor of Economics and Business Administration. M.E., Stevens Institute of Technology, 1947; M.B.A., New York University, 1952. (1956-)

Frederick Emerson Bamford, M.B.A., Assistant Professor of Economics and Business Administration. B.Mus., Boston University, 1954; B.S. in B.A., 1954; M.B.A., 1955. (1961-)

RAYMOND EDMOND BARBERA, Ph.D., Associate Professor of Romance Languages. A.B., Brooklyn College, 1947; A.M., University of Arizona, 1948; Doctor en Letras, Universidad Nacional de Mexico, 1949; Ph.D., University of Wisconsin, 1958. (1953-)

CLAUDE WILLIS BARLOW, Ph.D., Professor of Classics. A.B., Amherst College, 1928; A.M., Indiana University, 1930; Ph.D., Yale University, 1935. (1947-)

TILTON MARSHALL BARRON, B.L.S., Librarian. A.B., Colorado College, 1937; B.L.S., Columbia University School of Library Service, 1940. (1954-)

MELVIN BARTON, Ph.D., Consultant to Psychological Clinic. B.A., City College of New York, 1957; M.A., 1959; Ph.D., Clark University, 1964. (1965-)

JAMES FRANKLIN BEARD, JR., Ph.D., Professor of English. A.B., Columbia College, 1940; A.M., Columbia University, 1941; Ph.D., Princeton University, 1949. (1955-)

ROBERT NELSON BECK, Ph.D., Professor of Philosophy. A.B., Clark University, 1947; A.M., Boston University, 1948; Ph.D., 1950. (1948-)

HELEN L. BEE, Ph.D., Assistant Professor of Psychology. A.B., Radcliffe College, 1960; Ph.D., Stanford University, 1964. (1964-65)

FREDERICK W. BELL, Ph.D., Lecturer in Economics. B.S., Wayne State University, 1957; M.A., 1961; Ph.D., 1964. (1965-)

CLEMENS E. BENDA, M.D., Professor (affiliate) of Psychology. M.D., University of Berlin, 1922. (1958-)

JOSEPH C. BENTLEY, Ph.D., Assistant Professor of Educational Psychology. B.A., Brigham Young University, 1959; M.A., University of Minnesota, 1960; Ph.D., 1963. (1963-)

ROGER BIBACE, Ph.D., Associate Professor of Clinical Psychology, Director of Psychological Clinic. A.B., University of British Columbia, 1949; Ph.D., Clark University, 1957. (1957-)

GEORGE ATHAN BILLIAS, Ph.D., Associate Professor of American History. A.B., Bates College, 1948; A.M., Columbia University, 1949; Ph.D., 1958. (1962-)

CHARLES S. BLINDERMAN, Ph.D., Associate Professor of English. A.B., New York University, 1952; A.M., 1953; Ph.D., University of Indiana, 1957. (1962-)

DANIEL RAYMOND BORG, Ph.D., Assistant Professor of History. A.B., Gustavus Adolphus College, 1953; A.M., Yale University, 1957; Ph.D., 1963. (1961-)

HENRY CHARLES BORGER, JR., Ph.D., Professor of Education, Dean of Students. A.B., Princeton University, 1933; A.M., Columbia University, 1938; Ph.D., 1954. (1950-65)

MARTYN J. BOWDEN, M.A., Assistant Professor of Geography. B.A., University of London, 1957; M.A., University of Nebraska, 1959. (1964-)

DONALD MONROE BROVERMAN, Ph.D., Lecturer in Psychology. A.B., Union College, 1952; M.A., Clark University, 1956; Ph.D., 1958. (1964-)

WESLEY E. BRYERS, Ph.D., Assistant Professor of Geology. A.B., Rutgers University, 1956; Ph.D., Columbia University, 1964. (1961-)

GUY HARVEY BURNHAM, A.M., Instructor in Geography and Cartographer, Graduate School of Geography. A.B., Clark University, 1916; A.M., 1922. (1922-65). Lecturer in Cartography. (1965-)

GEORGE CAMOUGIS, Ph.D., Associate Professor (affiliate) of Physiology. B.S., Tufts College, 1952; A.M., Harvard University, 1957; Ph.D., 1958. (1958-)

Robert Francis Campbell, Ph.D., Professor of American History, Dean of the College. A.B., Yale University, 1939; A.M., Columbia University, 1940; Ph.D., 1947. (1946-57; 1960-)

William Hoyt Carter, Jr., Ph.D., Associate Professor of English. A.B., Middlebury College, 1936; A.M., Harvard University, 1938; Ph.D., 1951. (1949-)

James Madison Coffee, Ed.D., Associate Professor of Education. A.B., Duke University, 1949; A.M., Cornell University, 1950; Ed.D., Harvard University, 1957. (1954-)

Morris Harold Cohen, Ph.D., Associate Professor of Government. A.B., University of Chicago, 1939; Ph.D., 1950. (1947-)

Saul Bernard Cohen, Ph.D., Professor of Geography. A.B., Harvard College, 1947; A.M., Harvard University, 1950; Ph.D., Harvard University, 1955. (1965-)

Lydia Perry Colby, Registrar. (1932-65)

Theresa F. Cooney, Lecturer in Education. B.Ed., Rhode Island College of Education, 1946; M.Ed., Boston University, 1953. (1964-)

Samuel Pendleton Cowardin, III, Ph.D., Associate Professor of Fine Arts. A.B., Harvard University, 1943; A.M., 1948; Ph.D., 1963. (1949-)

Walter Hobson Crockett, Ph.D., Associate Professor of Psychology. A.B., University of Kansas, 1947; A.M., 1949; Ph.D., University of Michigan, 1953. (1957-)

Jessie Campbell Cunningham, A.M., Assistant Professor of English. Ph.B., University of Chicago, 1948; A.M., 1952. (1957-)

Joseph Colcord Curtis, Ph.D., Assistant Professor of Zoology. B.A., Cornell University, 1951; Ph.D., Brown University, 1960. (1963-)

John A. Davies, Ph.D., Assistant Professor of Physics. B.S., University of Maryland, 1953; M.S., 1954; Ph.D., 1960. (1963-)

Tamara Dembo, Ph.D., Professor of Psychology. Ph.D., University of Berlin, 1930. (1953-)

Thomas Joseph Dolphin, A.B., Director of The Evening College, Director of the Summer School. A.B., Rutgers University, 1951. (1957-)

Juris Draguns, Ph.D., Lecturer in Psychology. B.A., Utica College of Syracuse University, 1954; Ph.D., University of Rochester, 1958. (1963-)

James Stanhope Edwards, A.M., Associate Professor of German. A.B., Brown University, 1936; A.M., 1938. (1947-)

Karen Louise Erickson, Ph.D., Assistant Professor of Chemistry. B.S., Siena Heights College, 1960; Ph.D., Purdue University, 1964. (1965-)

Henry Frandsen, Ph.D., Assistant Professor of Mathematics. B.S., University of Illinois, 1957; M.S., 1959; Ph.D., 1961. (1961-)

Wesley Metcalf Fuller, M.Mu., Assistant Professor of Music. B.Mu., Oberlin Conservatory of Music, 1953; M.Mu., Boston University, 1958. (1963-)

Burton Noble Gates, Ph.D., Research Associate in Botany. A.B., Clark University, 1905; A.M., 1906; Ph.D., 1909. (1954-)

Norman Geschwind, M.D., Professor (affiliate) of Psychology. A.B., Harvard University, 1947; M.D., Harvard Medical School, 1951. (1964-)

Harold Goodglass, Ph.D., Professor (affiliate) of Psychology. A.B., College of the City of New York, 1939; A.M., New York University, 1948; Ph.D., University of Cincinnati, 1951. (1956-)

Edward Thomas Graening, M.S., Registrar. B.S., Evansville College, 1958; M.S., University of Illinois, 1963.

Rocheleau Zephirin Granger, Jr., A.M. in Ed., Director of Physical Education for Men. A.B., Clark University, 1938; A.M. in Ed., 1939. (1949-)

Sante Graziani, M.F.A., Associate Professor (affiliate) of Fine Arts. B.F.A., Yale University, 1942; M.F.A., 1948. (1958-)

Gerald N. Grob, Ph.D., Associate Professor of American History. B.S., College of the City of New York, 1951; A.M., Columbia University, 1952; Ph.D., Northwestern University, 1958. (1957-)

Gordon T. Gwinn, Ph.D., Associate Professor of Psychology. A.B., University of Arizona, 1942; Ph.D., Yale University, 1948. (1949-)

George Edward Hargest, M.B.A., Associate Professor of Economics and Business Administration. B.S., Temple University, 1933; M.Ed., 1937; M.B.A., Boston University, 1947. (1942-)

M. Evelyn Harriman, M.A. in Ed., Lecturer in Education. B.S. in Ed., Boston University, 1948; M.A. in Ed., 1950. (1956-)

Edward H. Hastings, A.M., Instructor in English. A.B., Wesleyan University, 1946; A.M., Harvard University, 1947. (1950-52; 1960-62; 1963-)

Seymour Hayden, Ph.D., Associate Professor of Mathematics. A.B., University of Wisconsin, 1947; A.M., Harvard University, 1948; Ph.D., 1963. (1957-)

Sherman Strong Hayden, Ph.D., Professor of International Relations. A.B., Harvard University, 1930; LL.B., 1933; A.M., Columbia University, 1936; Ph.D., 1942. (1946-)

Earl E. Hays, Ph.D., Associate Professor (affiliate) of Physics. A.B., Allegheny College, 1940; Ph.D., Northwestern University, 1949. (1961-)

Juergen Heberle, Ph.D., Associate Professor of Physics. A.B., Swarthmore College, 1944; Ph.D., Columbia University, 1955. (1965-)

Eugene L. Hess, Ph.D., Professor (affiliate) of Chemistry. B.Ch., University of Minnesota, 1938; M.S., University of Wisconsin, 1942; Ph.D., 1947. (1964-)

Serena Sue Hilsinger, Ph.D., Assistant Professor of English. A.B., Douglass College, 1959; Ph.D., University of Connecticut, 1964. (1962-)

Guy Tilghman Hollyday, M.A., Assistant Professor of German. A.B., Princeton University, 1952; M.A., Johns Hopkins University, 1959. (1964-)

M. Hazel Hughes, M.Ed., Dean of Women, Director of Physical Education for Women. B.Ed., Clark University, 1944; M.Ed., Boston University, 1949. (1942-)

Robert Mooers Hyde, A.M., Executive Vice President. A.B., Rutgers University, 1947; A.M., University of Pennsylvania, 1949. (1954-)

Rogers P. Johnson, M.A., Lecturer in Sociology. B.A., Antioch College, 1947; M.A., Columbia University, 1960. (1964-)

Vernon Jones, Ph.D., Professor of Educational Psychology. B.A., University of Virginia, 1920; M.A., 1920; M.A., Columbia University, 1924; Ph.D., 1926. (1926-)

Henry Donaldson Jordan, Ph.D., Professor of English History. A.B., Harvard University, 1918; A.M., 1922; Ph.D., 1925. (1931-)

Bernard Kaplan, Ph.D., Professor of Psychology. A.B., Brooklyn College, 1948; A.M., Clark University, 1950; Ph.D., 1953. (1955-)

Robert W. Kates, Ph.D., Associate Professor of Geography. A.M., University of Chicago, 1960; Ph.D., 1962. (1962-)

Gerson Kegeles, Ph.D., Professor of Chemistry. B.S., Yale University, 1937; Ph.D., 1940. (1951-)

John F. Kennison, Ph.D., Assistant Professor of Mathematics. Ph.D., Harvard University, 1963. (1963-)

Frederick W. Killian, LL.B., Associate Professor of Sociology. LL.B., New York University, 1925; A.B., 1934. (1947-)

Jesse Fannin King, A.M., Associate Professor of Romance Languages. A.B., Pomona College, 1936; A.M., Harvard University, 1937. (1946-)

Edward L. Klaiber, M.D., Lecturer in Psychology. A.B., Syracuse University, 1952; M.D., State University of New York, 1956. (1964-)

Werner P. Koella, M.D., Professor (affiliate) of Neurophysiology. M.D., University of Zurich, 1942. (1964-)

Roger P. Kohin, Ph.D., Assistant Professor of Physics. B.Sc., Notre Dame University, 1953; Ph.D., University of Maryland, 1961. (1962-)

Donald Max Krus, Ph.D., Associate Professor of Psychology. B.A., Drew University, 1949; A.M., Clark University, 1951; Ph.D., 1957. (1958-)

Donald S. Layne, Ph.D., Associate Professor (affiliate) of Biology, Director of Steriod Training Program. B.Sc., McGill University, 1953; M.Sc., 1955; Ph.D., 1957. (1964-)

Connor Lazarov, A.M., Instructor in Mathematics. B.S., University of Michigan, 1959; A.M., Harvard University, 1960. (1964-)

Dwight Erwin Lee, Ph.D., Jacob and Frances Hiatt Professor of European History, Dean of the Graduate School. A.B., University of Rochester, 1921; A.M., 1922; Ph.D., Harvard University, 1928. (1927-)

Herbert Lipton, Ph.D., Assistant Professor (affiliate) of Psychology. A.B., Rutgers University, 1949; A.M., Clark University, 1951; Ph.D., 1954. (1956-)

Arthur H. Martin, A.B., Instructor in English. A.B., Clark University, 1962. (1964-)

James Ackley Maxwell, Ph.D., Professor of Economics. A.B., Dalhousie University, 1921; A.M., Harvard University, 1923; Ph.D., 1927. (1924-)

John McLaughlin, A.M., Instructor in English. A.B., Harvard University, 1962; A.M., University of California, 1963. (1965-)

Frederick Eugene Melder, Ph.D., Professor of Economics. B.B.A., University of Washington, 1926; M.A., 1931; Ph.D., University of Wisconsin, 1936. (1937-46; 1950-)

David M. Moriarty, M.D., Professor (affiliate) of Clinical Psychology. M.D., Boston University, 1947. (1960-)

David Gillman Moulton, Ph.D., Associate Professor of Biology. B.S., Glasgow University, 1954; Ph.D., University of Birmingham, 1958. (1965-)

JOHN T. MURPHEY, B.S., Assistant Professor of Fine Arts. B.S. in Ed., Tufts University, 1959. (1965-)

RAYMOND EDWARD MURPHY, Ph.D., Professor of Economic Geography. B.S., Missouri School of Mines and Metallurgy, 1923; M.S., University of Wisconsin, 1926; Ph.D., 1930. (1946-)

HOWARD WHITE NICHOLSON, Ph.D., Professor of Economics. B.A., Oberlin College, 1942; A.M., Harvard University, 1948; Ph.D., 1950. (1958-)

THEODORE NICOL, Ph.D., Associate Professor of Romance Languages. A.B., Clark University, 1926; A.M., Harvard University, 1928; Ph.D., 1933. (1946-)

RUDOLPH FINK NUNNEMACHER, Ph.D., Professor of Zoology. B.S., Kenyon College, 1934; A.M., Harvard University, 1935; Ph.D., 1938. (1939-)

PHILIP GILBERT OLSON, Ph.D., Associate Professor of Sociology. A.B., University of Arizona, 1954; A.M., 1956; Ph.D., Purdue University, 1959. (1961-)

RALPH EDWARD PACKARD, M.A., Visiting Assistant Professor of Education. B.S., Brigham Young University, 1960; M.A., University of Minnesota, 1962. (1964-65)

LESLIE PHILLIPS, Ph.D., Professor (affiliate) of Clinical Psychology. A.M., University of Chicago, 1944; Ph.D., 1949. (1946-)

LARISA QUINCY-SOROKIN, M.A., Assistant Professor of Russian. B.A., University of California, Los Angeles, 1961; M.A., 1962. (1964-)

RELLY RAFFMAN, A.M., Associate Professor of Music. A.B., Dartmouth College, 1943; A.M., Columbia University, 1949. (1954-)

RICHARD ANTHONY RAY, A.M.Ed., Instructor in Romance Languages. A.B., St. Michael's College, 1962; M.A.Ed., Clark University, 1964. (1964-)

J. RICHARD REID, Ph.D., Professor of Romance Languages. A.B., Swarthmore College, 1935; A.M., Harvard University, 1936; Ph.D., 1943. (1944-)

JOHN THEODORE REYNOLDS, Ph.D., Associate Professor of Microbiology. B.S., Boston College, 1951; M.S., University of Massachusetts, 1954; Ph.D., 1962. (1956-)

HARRIS ROSENKRANTZ, Ph.D., Professor (affiliate) of Biology. A.B., Brooklyn College, 1943; M.S., New York University, 1946; M.S., Cornell Medical College, 1948; Ph.D., Tufts Medical School, 1952. (1959-)

MORDECAI SAMUEL RUBIN, Ph.D., Assistant Professor of Romance Languages. A.B., Rutgers University, 1952; Ph.D., University of Maryland, 1961. (1962-65)

ZALMAN RUBINSTEIN, Ph.D., Associate Professor of Mathematics, M.S., University of Jerusalem, 1958; Ph.D., University of Maryland, 1962. (1964-)

FRANCIS X. RUSSO, Ph.D., Assistant Professor of Education. B.A., Brown University, 1953; M.A., 1955; Ph.D., Boston University, 1964. (1965-)

CAROLYN J. RYAN, Ph.D., Assistant Editor of "Economic Geography" and Lecturer in Geography. B.S.Ed., State College at Bridgewater, Massachusetts, 1960; M.A., Clark University, 1963; Ph.D., 1964. (1964-65)

SEBASTIANO SANTOSTEFANO, Ph.D., Associate Professor of Psychology. B.S., University of Connecticut, 1953; M.S., Pennsylvania State University, 1954; Ph.D., 1957. (1964-)

DONALD T. SAVAGE, M.S., Assistant Professor of Economics. B.B.A., University of Massachusetts, 1960; M.S., University of Wisconsin, 1961. (1964-)

NEIL ROLF SCHROEDER, Ph.D., Assistant Professor of English. A.B., Brown University, 1952; Ph.D., Yale University, 1962. (1960-)

ARTHUR JOSEPH SERRA, B.S., Assistant in Physical Education. B.S., Springfield College, 1956. (1960-)

DAYTON DORRIS SHEPHERD, A.M., Lecturer in Education. B.S., Southwest Missouri State College, 1946; A.M., Yale University, 1950. (1954-)

CLIFFORD K. SHIPTON, Ph.D., Professor (affiliate) of American History. B.S., Harvard University, 1926; A.M., 1927; Ph.D., 1933. (1961-)

RODMAN ELDREDGE SNEAD, Ph.D., Associate Professor of Geography. B.A., University of Virginia, 1953; A.M., Syracuse University, 1955; Ph.D., Louisiana State University, 1963. (1961-)

ROBERT JOHN STAIRS, B.S., Assistant in Physical Education. B.S., University of Rhode Island, 1956. (1959-)

MAURICE R. STEIN, Ph.D., Visiting Lecturer in Sociology. B.A., University of Buffalo, 1949; Ph.D., Columbia University, 1958. (1965-)

JOHN SUNAPEE STUBBE, Ph.D., Associate Professor of Mathematics. B.S., University of New Hampshire, 1941; M.S., Brown University, 1942; Ph.D., University of Cincinnati, 1945. (1949-)

THOMAS TAMOTSU SUGIHARA, Ph.D., Professor of Chemistry. A.B., Kalamazoo College, 1945; S.M., University of Chicago, 1951; Ph.D., 1952. (1953-)

SANG C. SUH, M.A., Assistant Professor of Economics. B.A., Clark University, 1958; M.A., 1959. (1964-)

STANLEY SULTAN, Ph.D., Associate Professor of English. A.B., Cornell University, 1949; A.M., Boston University, 1950; Ph.D., Yale University, 1955. (1959-)

ERIKA ELISABETH THEOBALD, Ph.D., Assistant Professor of German. Ph.D., University of Vienna, 1948. (1964-)

EDWARD N. TRACHTENBERG, Ph.D., Associate Professor of Chemistry. A.B., New York University; A.M., Harvard University, 1951; Ph.D., 1953. (1958-)

ALDO PETER TRUANT, Ph.D., Professor (affiliate) of Biology. A.B., University of Western Ontario, 1944; Ph.D., Yale University. 1949. (1959-)

ROGER CARLETON VAN TASSEL, Ph.D., Associate Professor of Economics. A.B., Union College, 1947; A.M., Cornell University, 1950; Ph.D., Brown University, 1956. (1954-)

ANTHONY VARJABEDIAN, M.D., Lecturer in Psychology. A.B., Clark University, 1941; M.D., Yale University, 1944. (1954-)

ARTHUR J. VIDICH, Ph.D., Visiting Lecturer in Sociology. B.A., University of Michigan, 1944; M.A., University of Wisconsin, 1948; Ph.D., Harvard University, 1953. (1965)

MARIAN M. WALTER, Ph.D., Assistant Professor of Romance Languages. A.B., High Point College, 1948; M.A., University of North Carolina, 1954; Ph.D., 1964. (1965-)

PAUL A. WALTERS, M.D., Associate Professor (affiliate) of Educational Psychology. B.S., Duke University, M.D., The Johns Hopkins University. (1965-)

SEYMOUR WAPNER, Ph.D., G. Stanley Hall Professor of Genetic Psychology. A.B., New York University, 1939; A.M., University of Michigan, 1940; Ph.D., 1943. (1948-)

HENRY JOHN WARMAN, Ph.D., Professor of Geography. B.S. in Ed., Bloomsburg State Teachers College, 1932; Ed.M., Temple University, 1938; Ph.D., Clark University, 1945. (1943-)

Joseph Weinreb, M.D., Professor (affiliate) of Psychology. A.B., Vanderbilt University, 1931; M.D., 1935. (1947-)

Wen-Yang Wen, Ph.D., Assistant Professor of Chemistry. Ph.D., University of Pittsburgh, 1958. (1962-)

Harry Allen Whartenby, Jr., Ph.D., Assistant Professor of Romance Languages. B.A., Temple University, 1950; M.A., University of North Carolina, 1957; Ph.D., 1962. (1963-)

Jefferson A. White, Ph.D., Assistant Professor of Philosophy. B.A., Baylor University, 1952; B.D., Yale University, 1957; A.M., Yale University, 1960; Ph.D., 1964. (1961-)

Morton Wiener, Ph.D., Professor of Psychology. B.S., College of the City of New York, 1949; M.S., 1950; Ph.D., University of Rochester, 1953. (1957-)

Joachim F. Wohlwill, Ph.D., Associate Professor of Psychology. A.B., Harvard College, 1949; Ph.D., University of California, 1957. (1958-)

Peter H. Wolff, M.D., Lecturer in Psychology. M.D., University of Chicago, 1950. (1961-)

Allen M. Zwickel, Ph.D., Associate Professor of Chemistry. A.B., Cornell University, 1956; Ph.D., University of Chicago, 1959. (1961-)

Research Associates, 1964-65

Moses Attrep, Department of Chemistry. B.S., Louisiana College, 1960; M.S., University of Arkansas, 1962.

Abraham H. Blum, Department of Psychology. B.S., University of Wisconsin, 1949; M.A., Cornell University, 1951; Ph.D., 1953.

Peter D. Jeffrey, Department of Chemistry. B.Sc., University of Adelaide, 1959; B.Sc., (Hons.) 1960; Ph.D., 1965.

Ved P. Narang, Department of Chemistry. F.Sc., D.A.V. College, Dehra Dun, U.P., India, 1953; B.Sc., D.A.V. College, 1956; M.Sc., 1959; Ph.D., McGill University, Montreal, 1963.

Medicharla J. Rao, Department of Physics. B.Sc., Andhra University, Waltair, India, 1954; M.Sc., 1955; Ph.D., Clark University, 1964.

Shuji Saito, Department of Chemistry. B.S., Osaka University, Osaka, Japan, 1945; Ph.D., 1958.

Academic Boards and Committees, 1964-65

The President is an *ex officio* member of all boards and committees.

PRESIDENT'S CABINET: Jefferson, *chairman,* Bloodgood, *secretary,* Borger, Campbell, Hyde and Lee.

PERSONNEL AND ORGANIZATION: Jefferson, *chairman,* Crockett, *vice chairman and secretary,* Beck, Campbell, Jordan, Sherman Hayden, Lee, Maxwell, Nunnemacher and Wapner.

ADMINISTRATIVE: Campbell, *chairman,* Bloodgood, Borger, Haas, Hughes, Hyde and Potier.

GRADUATE BOARD: Jefferson, *chairman,* R. Anderson, Coffee, Seymour Hayden, Sherman Hayden, Jones, Jordan, Kegeles, Lee, Melder, Murphy, Nicholson, Nunnemacher, Reynolds, Sugihara, Wapner, Warman, and Wiener. *Alternates:* Ahmadjian, Borger, Cohen, Kaplan, Kohin, Maxwell, Snead, Stubbe, and Trachtenberg.

CREDENTIALS: Lee, *chairman,* Sherman Hayden, Jones, Nicholson, Murphy, Nunnemacher, Sugihara and Wapner.

PROFICIENCY IN FOREIGN LANGUAGES: Arndt, Nicol and a representative of the student's major department.

ACADEMIC COUNCIL: Campbell, *chairman,* Ahmadjian, R. Anderson, Beard, Grob, Gwinn, and King.

COLLEGE BOARD: Borger, *chairman,* Balko, Campbell, Edwards, Frandsen, Hughes, and White.

ADMISSIONS: Potier, *chairman,* Bee, Borger, Campbell, Cohen, Cowardin, Dolan, Hamill, Hughes, Kohin, Reynolds and Schroeder.

ATHLETICS: Warman, *chairman,* Borger, Granger, Hughes, Maxwell, and Stubbe.

SCHOLARSHIPS: Sherman Hayden, *chairman,* Barron, Borger, Campbell, Potier, and Reynolds.

EVENING COLLEGE BOARD: Dolphin, *chairman,* Balko, Blinderman, Coffee, Hargest, Kaplan, Killian, Lee and White.

LIBRARY: Cowardin, *chairman,* Ahmadjian, and Grob.

Scholars and Fellows Appointed From Clark University Funds 1964-65

Alumni Association Fellow

Daniel M. Zavisza, Chemistry, B.S., Holy Cross College, 1960.

George S. Barton Fellow

Brian W. Burhoe, History, Government & International Relations, A.B., Clark University, 1964.

Joseph F. Donnelly Fellows

Hak Chung Choo, Economics, B. of Comm., Yonsei University, Korea, 1961.

Robert D. Clair, Economics, B.S., Seton Hall, 1963; M.A. *ibid.*, 1964.

Jerry A. Hall, Geography, A.B., University of Buffalo, 1962.

Donald M. Matusen, History, A.B., Roosevelt University, 1963.

Israel Nachshon, Psychology, A.B., Bar Ilan University, Israel, 1962.

Gerald A. Winer, Psychology, B.S., Trinity College, 1963.

Austin S. Garver Scholars

Shoon Ja Kwon, Chemistry, B.S., Seoul National University, 1959; M.S., *ibid.*, 1961.

Michele M. Hilden, History, Government & International Relations, A.B., Emmanuel College, 1963.

George W. Neilson, Physics, AH-WC, Heriot-Watt College, Scotland, 1962.

Charles H. Teller, Geography, A.B., Brandeis University, 1963.

George Frisbie Hoar Scholars

Nathan H. Meleen, Geography, B.A., San Jose State College, 1962.

George B. Priddle, Geography, A.B., University of Western Ontario, 1962; M.A., Clark University, 1964.

Francesco Rapuano, Economics, B.S. in B.A., Northeastern University, 1959; M.A., Boston University, 1963.

Roger A. Roberge, Geography, B.A., Assumption College, 1962.

Dvora Rosenbach, Psychology, A.B., Bar Ilan University, Israel, 1961; M.A., Columbia University Teachers College, 1964.

Charles H. Thurber Scholar

Nathan Yu-Jen Lai, History, Government & International Relations, A.B., National Taiwan University, 1962.

Appointments From Other Funds 1964-65

National Aeronautics and Space Administration

Theodore P. Gannutz, Biology, A.B., University of Connecticut, 1963.

Peter D. Yedinak, Physics, B.Sc., Union College, 1962.

National Defense Education Act—Title IV Fellows in History

Thomas J. Baker, Jr., A.B., Tulane University, 1964.

Donald Q. Cannon, A.B., University of Utah, 1961; M.A., *ibid.,* 1962.

Sidney Hart, B.A., Long Island University, 1964.

Lawrence J. Kazura, B.A., Queens College, 1962.

John F. Meyers, A.B., University of Minnesota, 1963.

Donn M. Nibblett, A.B., Whittier College, 1963.

Edmund B. Thomas, Jr., B.S., John Carroll University, 1963; M.A., Kent State University, 1964.

John A. Worsley, A.B., Brown University, 1956.

National Institute of Mental Health

Anna M. Guyette, Psychology, A.B., University of New Hampshire, 1959; M.A., *ibid.,* 1961.

Elmer F. Morgan, Psychology, A.B., Kent State University, 1955; M.A., *ibid.,* 1957.

Alice T. O'Malley, Biology, A.B., Anna Maria College, 1958; M.A., Clark University, 1961.

Willis F. Overton, Jr., Psychology, A.B., Boston University, 1960; M.A., *ibid.,* 1961.

George R. Rand, Psychology, B.Sc., City College of New York, 1959; M.A., Clark University, 1961.

Donelda Lane Stayton, Psychology, B.Sc., Denison University, 1962; M.A., Clark University, 1964.

Leon W. Teft, Psychology, B.A., University of Bridgeport, 1961; M.A., Clark University, 1962.

National Science Foundation

Richard G. Beschle, Biology (Science-Faculty Fellow), B.S., Worcester Polytechnic Institute, 1950; M.S., *ibid.,* 1955.

Maida B. Follini, Psychology (Cooperative Graduate Fellow), A.B., Radcliffe College, 1952; M.Ed., Boston University School of Education, 1959.

Armand D. Hufault, Physics (Summer Fellow), A.B., Clark University, 1963.

Julie Rogers, Psychology (Graduate Fellow), B.A., Bennington College, 1964.

Michael E. Somers, Biology (Science-Faculty Fellow), A.B., University of Bridgeport, 1951; M.A., Clark University, 1955.

Thomas F. Wittstruck, Chemistry (Cooperative Graduate Fellow), B.S., University of Florida, 1956.

United States Steel Foundation

David G. Arey, Geography, A.B., Denison University, 1959.

John Hay Whitney Foundation

Thomas L. Roberts, Biology, A.B., Talladega College, 1957; M.S., Trinity University, 1961.

Woodrow Wilson Foundation

Rachel C. Doody, Psychology, A.B., Oberlin College, 1964.

James Prochaska, Psychology, A.B., Wayne State University, 1964.

Teaching Assistants and Teaching Assistant Scholars, 1964-65

Allen, John L., Geography, B.A., University of Wyoming, 1963; M.A., *ibid.,* 1964.

Baum, Nancy M., Education, A.B., Clark University, 1963.

Bedding, David R., Physics, B.S., Fairfield University, 1963.

Bierlmaier, August Hans, Mathematics, A.B., Clark University, 1963.

Cannon, Donald Q., History, A.B., University of Utah, 1961; M.A., *ibid.,* 1962.

Downey, George T., Geography, B.S.Ed., Worcester State College, 1963.

Ephraim, Allan, Mathematics, B.S., Clark University, 1963.

Fleming, Daniel J., Mathematics, A.B., Clark University, 1962.

Frenette, Robert A., Mathematics, B.S., Worcester Polytechnic Institute, 1964.

Goree, Harold, Biology, B.S., University of Nebraska, 1964.

Hanck, Robert P., Education, B.A., Beloit College, 1963.

Harvey, Andrew S., Economics, A.B., University of Maine, 1961.

Hsu, Ying-Chieh, Physics, B.Sc., Taiwan Normal University, 1961.

Hwang, Teh-hwah, Mathematics, Cheng Kung University, Taiwan, 1961.

Jane, Yeh, Mathematics, B.Sc., Taiwan Normal University, 1963.

Kao, Sue, Mathematics, B.S., Tamkang College of Arts & Sciences, Taiwan, 1963.

Kaput, James J., Mathematics, B.S., Worcester Polytechnic Institute, 1964.

Kaylani, Nabil M., Government, A.B., American University of Beirut, 1962; M.A., Clark University, 1964.

Kazura, Lawrence J., History, B.A., Queens College, 1962.

Keenan, Joseph A., S.J., Chemistry, B.S., Spring Hill College, 1964.

King, Frances Wai Chung, (Sem. I) Chemistry, B.A., Incarnate Word College, 1964.

Kolligian, Carole N., Education, A.B., Clark University, 1962.

Laliberte, Joseph C., Mathematics, B.S., Bradford Durfee College, 1964.

Lawson, Merlin P., Geography, A.B., University of Buffalo, 1963.

Lewis, Constance L., Mathematics, B.S., Simmons College, 1963.

Lindberg, David D., Physics, A.B., Washington & Jefferson College, 1961.

Lovely, William, Economics, B.S. in B.A., Northeastern University, 1958; M.B.A., *ibid.,* 1960.

Mahler, Richard A., Biology (Sem. II), A.B., Boston University, 1964.

Matusen, Donald, History, A.B., Roosevelt University, 1963.

McGonagle, John F., Sociology, A.B., University of Maine, 1963.

Montgomery, Florence I., Biology (Sem. I), B.S., University of Georgia, 1964.

Morimoto, Keisuke, Chemistry, B.S., University of Osaku, Japan, 1960.

Nachshon, Israel, Psychology, A.B., Bar Ilan University, Israel, 1962.

Nickerson, Peter A., Biology, A.B., Brown University, 1963.

Power, Kathleen F., Education, B.A., Clark University, 1964.

Press, Allan, Psychology, B.A., Massachusetts Institute of Technology, 1964.

Quarton, David J., Physics, A.B., Hamilton College, 1957.

Raab, Karl H., Chemistry, A.B., University of Vermont, 1959.

Raboy, David A., Sociology, A.B., University of Toledo, 1963.

Roberts, Thomas L., Biology, A.B., Talladega College, 1957; M.A., Trinity University, 1961.

Rosenbach, Dvora, Psychology, A.B., Bar Ilan University, Israel, 1961; M.A., Columbia University Teachers College, 1964.

Sargent, Albert J., Economics, B.S. in B.A., Northeastern University, 1960; M.B.A., *ibid.*, 1962.

Sheffield, Joel B., Biology, A.B., Brandeis University, 1963.

Sia, Anna Chin, Mathematics, B.S.Com.Ed., 1955, University of the East; B.S.E., *ibid.*, 1957; M.A.Ed., Clark University, 1962.

Smith, Harvey Naaman, Chemistry, B.S., Tufts University, 1959.

Spezeski, William, Mathematics, B.S., University of Massachusetts, 1964.

Stayton, Donelda Lane, Psychology, B.Sc., Denison University, 1962; M.A., Clark University, 1964.

Ventresco, Fiorello, History, B.A., Boston University, 1959; M.A., University of Michigan, 1961.

Walch, Irene W., Education, A.B., Clark University, 1964.

Weiner, Robert S., Geography, B.S., University of Pittsburgh, 1948; M.A., *ibid.*, 1949.

Whall, Thomas J., Chemistry, A.B., St. Anselm's College, 1964.

Wilson, Robert W., Chemistry, B.S.Ed., State University College of Education at Oswego, 1962.

Winer, Gerald A., Psychology, B.S., Trinity College, 1963.

Wittstruck, Thomas A., Chemistry, B.S., University of Florida, 1956.

Worsley, John A., Government, A.B., Brown University, 1956.

Yang, Jen-rong, Biology, B.S., National Taiwan University, 1962.

Young, Ching-hua, Chemistry, B.Sc., Taiwan Provincial Cheng Kung University, 1964.

Young, John H., Physics, B.A., Gettysburg College, 1962; M.Sc., University of New Hampshire, 1964.

The Corporation

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Carl H. Haas, Assistant Treasurer	Worcester, Mass.
Robert M. Hyde, A.M., Assistant Secretary	West Boylston, Mass.

Life Members

Howard M. Booth (1939-)	Worcester, Mass.
Roland A. Erickson, A.M. (1951-)	Worcester, Mass.
A. D. Ross Fraser, A.B., L.H.D. (1960-)	Rome, New York
Jacob Hiatt, A.M. (1955-)	Worcester, Mass.
John Jeppson, M.B.A., Sc.D., (1948-)	Worcester, Mass.
Richard W. Mirick, LL.B. (1957-)	Worcester, Mass.
Joseph C. Molder, M.B.A. (1954-)	Worcester, Mass.

Term Members

Mrs. Milton P. Higgins (1962-)	Worcester, Mass.
Frederic W. Howe, Jr., A.B. (1962-)	New Braintree, Mass.
Alden P. Johnson, A.B. (1962-)	Worcester, Mass.
Robert A. Miller, A.B., C.P.A. (1963-)	Worcester, Mass.
Stephen T. Riley, Ph.D. (1963-)	Weston, Mass.
Constance E. Smith, Ph.D. (1963-)	Cambridge, Mass.
Elwyn C. Hale (1963-)	Piedmont, Calif.
Ben H. Bagdikian, A.B., L.H.D., Litt.D. (1964-)	Washington, D. C.
Fairman C. Cowan, LL.B. (1964-)	Worcester, Mass.
Mrs. Robert H. Goddard, A.M., Sc.D. (1964-)	Worcester, Mass.
Archie Greenberg, A.M. (1965-)	Miami Beach, Fla.

Members Elected by the Alumni

Lloyd Anderson, LL.B. (1962-)	Worcester, Mass.
C. Harry Kuniholm, A.B. (1962-)	Gardner, Mass.
Samuel N. Behrman, A.M., Litt.D. (1962-)	New York, N. Y.
Chester Bland, A.M. (1963-)	West Hartford, Conn.
John J. Singer, Jr., Ph.D. (1964-)	Nashua, N. H.
Shannon B. McCune, Ph.D. (1965-)	Burlington, Vt.

Emeriti

Frank L. Adams, A.B. (1938-1961)	Fort Lauderdale, Fla.
Harry C. Coley (1948-1962)	West Boylston, Mass.
Francis H. Dewey, Jr., LL.B. (1934-1962)	Worcester, Mass.
Samuel H. Dolbear, Sc.D. (1940-1961)	New York, N. Y.

Committees of the Board of Trustees (1964-1965)

EXECUTIVE:	Jeppson, *chairman,* Mirick, *secretary,* Booth, Hiatt, Higgins, Howe, Johnson and Miller.
BUDGET AND FINANCE:	Molder, *chairman,* Cowan, Miller and Mirick.
ACADEMIC AFFAIRS:	Smith, *chairman,* Bland, *vice chairman,* *Campbell, *secretary,* Bagdikian, Behrman, Benner, Cowan, Goddard, Hale, Kuniholm, Singer and *Lee.
NOMINATING:	Fraser, *chairman,* Riley, *vice chairman,* Erickson, Howe, Jeppson, Johnson, and Smith.
PHYSICAL PLANT:	Hiatt, *chairman,* Higgins, *vice chairman,* *Bloodgood, *secretary,* Behrman, Bland, Goddard, Johnson, Riley, Singer, *Ahmadjian, *Barron, *Billias, *Borger and *Hyde.
PLANNING AND DEVELOPMENT:	Howe, *chairman,* Cowan, *vice chairman,* Fraser, Hale, Hiatt, Johnson, Riley, *Hyde, *Murphy and *Rafe.
HONORARY DEGREES:	Hale, *chairman,* Bagdikian, *vice chairman,* *Holran, *secretary,* Anderson, Kuniholm, *Maxwell, *Nunnemacher, *Schroeder and *Warman.
AUDITING:	Anderson, *chairman,* Booth and Singer.
COMMITTEE ON SALARIES AND ORGANIZATION:	Jeppson, *chairman,* Howe and Miller.
AD HOC COMMITTEE ON GIFTS AND BEQUESTS ADMINISTRATION:	Mirick, *chairman,* *Hyde, *secretary,* Anderson, Miller, *Bloodgood and *Murphy.
*NON-TRUSTEE MEMBERS:	Dr. Vernon Ahmadjian, Tilton M. Barron, Dr. George A. Billias, Willard G. Bloodgood, Dr. Henry C. Borger, Jr., Dr. Robert F. Campbell, Bruce G. Holran, Robert M. Hyde, Dr. Dwight E. Lee, Dr. James A. Maxwell, David L. Murphy, Dr. Rudolph F. Nunnemacher, Stephen C. Rafe, Dr. Neil R. Schroeder and Dr. Henry J. Warman.

Academic and Administrative Officers

Howard B. Jefferson, Ph.D., *President*

Robert W. Baker, Ph.D., *Dean of Students*
Charlotte L. Ball, *Guidance Counselor*
Tilton M. Barron, B.L.S., *Librarian*
Willard G. Bloodgood, M.S., *Business Manager*
Roger Bibace, Ph.D., *Director, Psychological Clinic*
Robert F. Campbell, Ph.D., *Dean of the College*
Alice L. Carlson, *Chief Accountant*
James M. Coffee, Ed.D., *Director, Guidance and Placement*
Robert F. Coryell, A.B., *Assistant Director of Public Relations*
Richard J. Courtney, B.S. in B.A., *Manager, University Bookstore*
Gladys E. Diliberto, *The College Secretary*
Thomas M. Dolan, M.A.Ed., *Alumni Secretary*
Thomas J. Dolphin, A.B., *Director, The Evening College and the Summer School*
Charles K. Gleason, Ed.M., *Assistant Director of Development*
Robert E. Goodney, *Superintendent, Buildings and Grounds*
Edward T. Graening, M.S., *Registrar*
Carl H. Haas, *Controller*
J. Leo Hamil, A.B., *Assistant Director of Admissions*
Bruce G. Holran, A.B., *Director of Public Relations*
Mary A. Hubbard, *Bursar*
M. Hazel Hughes, M.Ed., *Dean of Women*
Robert M. Hyde, A.M., *Executive Vice President*
George M. Joseph, M.D., *Medical Director*
Dwight E. Lee, Ph.D., *Dean of the Graduate School*
David L. Murphy, A.B., *Executive Assistant to the President*
Richard W. Pierson, A.M., *Financial Aid Officer*
Ronald D. Potier, A.B., *Director of Admissions*
Spencer R. Potter, M.A.Ed., *Assistant Director of Guidance and Placement*
Stephen C. Rafe, B.S. in B.A., *Associate Director of Development*
William A. Runk, *Director, Food Services*
Marcia A. Savage, A.M. in Ed., *Assistant to the Dean of Women*
John E. Snow, *Manager, Printing Department*
William E. Topkin, A.M. in Ed., *Assistant Dean of Students*

Summary of Enrollment, 1964-65

	First Semester			*Second Semester*		
	Men	*Women*	*Total*	*Men*	*Women*	*Total*
Undergraduates						
Freshmen	167	125	292	162	123	285
Sophomores	139	94	233	133	91	224
Juniors	161	97	258	148	96	244
Seniors	138	72	210	123	68	191
TOTAL	605	388	993	566	378	944
Graduate Students	112	42	154	186	83	269
Special Students	15	15	30	20	8	28
TOTALS	732	445	1177	772	469	1241
Evening College*	580	298	878	506	269	775
Total Students	1312	743	2055	1278	738	2016

Summer School—1964: 500

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* *Does not include day college students or those enrolled for non-credit courses.*

CALENDAR 1965

SEPTEMBER

S	M	T	W	T	F	S
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CALENDAR 1966

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CALENDAR 1967

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Academic Calendar for 1965-66

1965

Wednesday, September 8	Freshman orientation begins.
Monday, September 13	First semester registration.
Tuesday, September 14	Classes begin.
Tuesday, October 12	Columbus Day. Not a holiday.
Monday, November 1	Last day for receiving applications for admission to candidacy for the degree of Doctor of Philosophy in June, 1966. Mid-semester reports due at Registrar's Office at 9 a.m.
Thursday, November 11	Veteran's Day. Not a holiday.
Wednesday, November 24	Beginning of Thanksgiving recess at close of classes.
Monday, November 29	Thanksgiving recess ends at 8:30 a.m.
Monday, December 13-Friday, December 17	Pre-registration for second semester.
Saturday, December 18	Beginning of Christmas recess at close of classes.

1966

Monday, January 3	End of Christmas recess at 8:30 a.m.
Monday, January 3	No classes.
Tuesday, January 4	No classes.
Wednesday, January 5	Semester examinations begin.
Tuesday, January 11	Last day of examinations.
Wednesday, January 12	Independent Study Period begins.
Tuesday, February 1	Mid-year recess begins at 5:00 p.m.
Monday, February 7	Second semester registration.
Tuesday, February 8	Classes begin.
Friday, February 11	Last day for receiving applications for admission to candidacy for the degrees of Master of Arts and Master of Arts in Education in June, 1966.
Tuesday, February 22	Washington's Birthday. Not a holiday.
Monday, March 28	Mid-semester reports due at Registrar's Office at 9 a.m.
Saturday, April 2	Beginning of spring recess at close of classes.
Monday, April 11	End of spring recess at 8:30 a.m.
Monday, April 25-Friday, April 29	Pre-registration for first semester, 1966-67.
Monday, May 9	Dissertations for the degree of Doctor of Philosophy due at Registrar's Office at 9 a.m.
Monday, May 16	Theses for degrees of Master of Arts and Master of Arts in Education due at Registrar's Office at 9 a.m.
Thursday, May 19	No classes.
Friday, May 20	No classes.
Saturday, May 21	No classes.
Monday, May 23	Semester examinations begin.
Monday, May 30	Memorial Day. A holiday.
Sunday, June 5	Commencement Day.
Monday, September 12	First semester registration for 1966-67.

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Clark University Bulletin

WORCESTER, MASSACHUSETTS 01610

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Additional Information

Persons interested in other information about Clark University should address the appropriate officer of administration listed below:

General University Affairs:	Dr. Howard B. Jefferson President
General College Affairs:	Dr. Robert F. Campbell Dean of the College
Undergraduate Student Affairs:	
Men	Dr. Robert W. Baker Dean of Students
Women	Miss M. Hazel Hughes Dean of Women
Admission to the College:	Mr. Ronald D. Potier Director of Admissions
Financial Aid:	Mr. Richard W. Pierson Financial Aid Officer
Graduate School Affairs:	Dr. Dwight E. Lee Dean of the Graduate School
Evening College Affairs:	Mr. Thomas J. Dolphin Director
Summer School Affairs:	Mr. Thomas J. Dolphin Director
Alumni Affairs:	Mr. Thomas M. Dolan Alumni Secretary
Records and Transcripts:	Mr. Gerald T. Corcoran Registrar
University Address:	950 Main Street Worcester, Massachusetts 01610
University Telephone:	Area Code 617 Telephone: 791-6241

Clark University reserves the right to amend any administrative policy described in this Catalog without prior notice to persons who might thereby be affected. Information about expenses and fees and other charges applies to the academic year, 1966-67.

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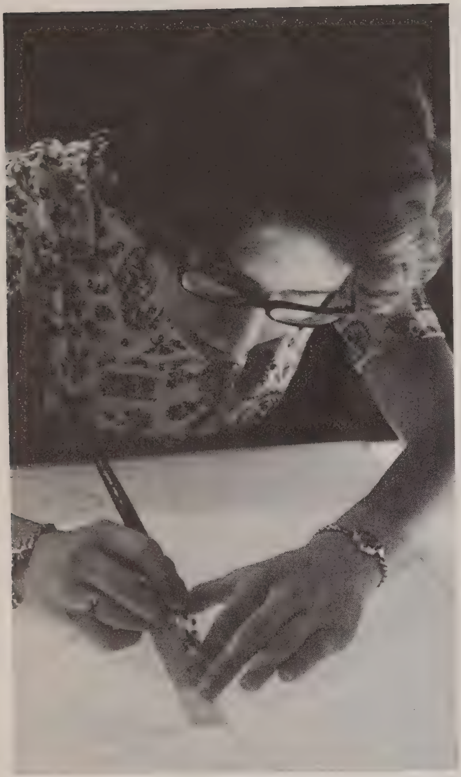


THE UNIVERSITY

General Information

Corporate Name: Trustees of Clark University
President: Dr. Howard B. Jefferson
Incorporation: 1887
Function: Independent university of liberal arts and business administration for men and women
Degrees Conferred: Bachelor of Arts
Bachelor of Fine Arts
Bachelor of Science in Business Administration
Bachelor of Science in General Studies
Master of Arts
Master of Arts in Education
Master of Business Administration
Doctor of Education
Doctor of Philosophy
Enrollment: 1321
Faculty: 98
Endowment, December 31, 1965: Book Value: $9,493,359
Market Value: $14,132,886
Library: 260,000 volumes
50,000 maps and charts

Clark University
FOUNDED 1887

The University Today

Clark University is a small urban, independent, co-educational university of liberal arts and business administration, founded in 1887. With a current enrollment of 1045 undergraduates—620 men and 425 women—and 276 graduate students, the University is situated on a compact 35-acre campus in Worcester, the third largest New England urban center.

The University's activities include undergraduate programs leading to the bachelor's degree in the arts and sciences, graduate study to and beyond the doctorate, and university-level educational programs for adults. These activities are carried on by four divisions: The College, The Graduate School, The Evening College and The Summer School.

As an institution, Clark is committed to scholarly excellence and intellectual creativity, faith in the ideals of liberal undergraduate education, a concern for graduate education and the values inherent in the small university. These beliefs underlie everything the University is or does, and in combination are the essentials which give Clark a unique position among the more than 2,000 colleges and universities in America.

In practice, the fact that the University has by design remained small in numbers in an age of giant universities has enabled Clark to offer its students a rare educational experience. Through a close association and partnership between the College and the Graduate School, the University effectively combines some of the best features of the small liberal arts college with the scholarly research and advanced programs of the university, to the advantage of both levels. As a result, the Clark undergraduate learns in the university atmosphere of inquiry, intellectual liveliness and vitality.

This exposure is enhanced further by the close personal relationships maintained at Clark between and among faculty, undergraduates and graduate students, made possible by a low faculty to student ratio of one to fourteen, and by a small enrollment in the Graduate School.

Clark College seeks to provide its students with essential knowledge and understanding through concentration in one of twenty-one fields of study and the selection of a variety of courses in related or other disciplines. In the Graduate School, the Master's degree is offered in fifteen areas, and doctoral programs are available in twelve fields. Today a student can receive instruction leading to the Doctor of Philosophy degree in biology, chemistry, chemical physics, colonial American history, economics, geography, history, international relations, mathematics, physics, and psychology. A Doctor of Education degree also is offered. Master's degrees can be obtained in these fields and also in business administra-

Dr. Howard B. Jefferson
President of the University

tion, English, government, and sociology. The undergraduate may take courses in these fields, except business administration, and, in addition, in classics, comparative literature, fine arts, German, linguistics, music, philosophy, Romance languages, and Russian.

For the superior undergraduate, there are many opportunities to observe and even participate in research. Some departments have regular programs through which outstanding undergraduates take advanced courses and participate actively in the research of the department.

For all undergraduates, a required three-week period of January independent studies is given to stimulate students to accept greater responsibility for their own education, a practice which is expected of the Clark student. The program provides students with increased opportunities to develop maximum intellectual inquiry, both in their specialized discipline and in related and other fields, through a variety of projects which the student is expected to pursue largely on his own with faculty guidance.

The University's insistence on high academic achievement, together with its unique interrelationships between the undergraduate and graduate program, accounts in large measure for the fact that over fifty percent of the graduates of Clark College continue their education at graduate or professional schools. It accounts, too, for the fact that a large number of Clark's graduates have earned Woodrow Wilson Fellowships, Fulbright grants and other national awards for graduate study.

Most important, these accomplishments are significant reflections of the scholarly teaching and productive research of the Clark faculty. Nearly eighty per cent of its members hold the Ph.D. degree, a ratio which is among the highest in the nation. In the past few years, the faculty has published over 300 scholarly articles and has written a number of books.

In addition to its superior academic programs, Clark University offers its students abundant opportunities for rewarding experiences in broad programs of co-curricular and athletic activities—both organized and informal—as well as in cultural activities of high quality both at the campus and within the Worcester community.

Admission to Clark is highly competitive, and is based on rigid standards which assume that all applicants for admission to the University have demonstrated a capacity and a concern for learning. Student tuition and other charges for 1966-67 are approximately $2,800, including $1,700 for tuition and about $1,100 for room and board. Nearly one-half of the students receive financial aid in the form of scholarships, grants, loans or part-time employment.

The University's History

Clark University was founded in 1887 chiefly through the efforts of two men, Jonas Gilman Clark, a sagacious merchant and businessman for whom the University is named, and Dr. Granville Stanley Hall, an educator of breadth and wisdom.

Reversing the pattern at most colleges and universities in the United States, Clark was founded as a graduate institution. Undergraduate liberal arts education was established 15 years later in 1902.

Mr. Clark, a native of Worcester environs, amassed wealth during the California Gold Rush by supplying miners and others with manufactured goods. He increased his personal fortune through prudent business transactions initiated after his return to the East at the end of the Civil War. He later settled in Worcester where he became interested in civic affairs. It was during this period of his life that he decided to endow a new institution of higher learning. His last years were largely devoted to this philanthropic endeavor, with the assistance of his wife, Susan, and a group of prominent Worcester citizens, including

George F. Hoar, a United States Senator from Massachusetts, and General Charles Devens.

In 1887, the Trustees of Clark University were incorporated. Construction began in that year on a main building, known today as Jonas G. Clark Hall, and the Science Building. Dr. Hall was appointed the first president of the University. He had been a professor of philosophy, psychology and education at The Johns Hopkins University, where he had established his reputation as a vigorous and original scholar.

Recognizing the need for graduate institutions in the United States (there was at that time only one titled graduate school in the United States—The Johns Hopkins University), President Hall began the organization of an educational institution which would be solely concerned with graduate study and research. As a result, Clark University became the second graduate school established in the United States and for 15 years operated only as a graduate school. This unusual educational idea attracted the attention of a number of brilliant and original scholars, who, upon President Hall's urging, joined the Clark faculty. They constituted one of the most outstanding communities of scholars the country had then known.

The first students entered the University in 1889 and its first two graduates received doctorates in 1891. By 1900, when Clark University became one of the 14 charter members of the Association of American Universities, the brilliance of both teachers and students had established the scholarly reputation of the University.

While Mr. Clark supported President Hall's concept of graduate education, he also was interested in an undergraduate college for men, particularly men who possessed limited financial resources. Accordingly, a codicil to his will, effective upon his death in 1900, provided for the establishment of an undergraduate college. In compliance with the codicil, the Trustees established Clark College in 1902, with an administration and faculty distinct from those of the graduate school. Carroll Davidson Wright, then serving as the first United States Commissioner of Labor, was selected as the first president of the College. Rufus C. Bentley was appointed as the first dean.

Clark College, from its beginning, had an educational philosophy which was marked by seriousness of purpose and hard work. Inasmuch as the bachelor's degree was granted after three years of study, as opposed to the more common four-year curriculum of the day, the student carried a heavy program of study. There were intramural contests rather than intercollegiate sports; extracurricular activities were at a minimum. Though entrance requirements were informal, a high standard of academic achievement was necessary to remain in College.

The educational program formulated for Clark College by President Wright and Dean Bentley complemented the already-established program of the graduate school. It was only a matter of time before the undergraduate college and the graduate school became an educational and administrative unit.

President Wright died in 1909. He was succeeded by Edmund Clark Sanford, a professor of psychology in the graduate school. President Hall resigned in 1920 and President Sanford felt the time was advantageous to unite the undergraduate college and graduate school. He resigned from the presidency of the College to return to teaching and scholarship, leaving the possibility open for the reorganization of the two entities under a single president. The Trustees endorsed the reorganizational plan, and began a search for a president to lead the University.

In 1920, Wallace Walter Atwood, a professor of physiography at Harvard University, was appointed by the Trustees as president. During his tenure, there were significant changes in both the educational program and physical plant. The three-year curriculum leading to the bachelor of arts degree was increased to four years. The Graduate School of Geography was founded in 1920. Participation in intercollegiate activities, including athletics, was encouraged. Additions to the physical plant included a men's dormitory, an athletic field, a gymnasium, a library tower and an auditorium. The latter was named Atwood Hall in honor of the president.

In 1941, a Division of Business Administration was established, and Clark became a co-educational institution when the Trustees voted to create the Women's College of the University.

President Atwood retired in 1946. His successor was Dr. Howard Bonar Jefferson, who this year begins his 21st year as president of the University. Dr. Jefferson came to Clark from Colgate University, where he was professor of philosophy and Director of the School of Philosophy and Religion.

Under Dr. Jefferson's leadership, the University has continued to develop and be enriched. In 1953, a chapter of Phi Beta Kappa, the national liberal arts honor society, was established at the University. In that same year, the Evening College of Clark University was organized as an institution for adult learning. It provides university education for adults and offers an opportunity for persons to earn the bachelor's degree, and the master's degree in business administration exclusively by evening study.

In 1958, the Institute of Human Development was established as an adjunct of the Department of Psychology. A center of psychological study, its purpose is to develop an all-inclusive concept of human development. In 1964, the center was renamed the Heinz Werner Institute of Developmental Psychology in honor of the late Dr. Heinz Werner, G. Stanley Hall Professor of Genetic Psychology,

GODDARD ROCKET DEVELOPMENT

Emeritus, who served as chairman and as a director of the Institute until his death.

The University's physical plant has doubled during Dr. Jefferson's tenure. A new chemistry laboratory (Jeppson Laboratory) was opened in 1958. In the following year, two new dormitories (Bullock Hall and Wright Hall) and a student center (Jefferson Hall) were opened. The student center was named in honor of Dr. Jefferson. In 1964, a modern residential center (Johnson Hall for Women, Sanford Hall for Men and Little Student Commons) was opened to provide residential facilities for 296 students. The University is building a second, three-unit residential center, scheduled to open in September, 1967, and the Robert Hutchings Goddard Library, scheduled to be in use in September, 1968.

The University's academic programs also have been greatly broadened and strengthened during Dr. Jefferson's tenure as president. Doctoral programs in chemical-physics and education were inaugurated in 1961 and 1962, respectively. A doctoral program in biology was re-established in 1962. Geology became an undergraduate major in 1963, and music in 1964. In 1965, a doctoral program in mathematics was established, and a three-week January program of independent studies for all undergraduates was announced. In 1966, a doctoral program in physics was re-established and a master's program in English was inaugurated. In the same year, the undergraduate major leading to the Bachelor of Science in Business Administration degree was discontinued in favor of the traditional liberal arts major in economics, and the Bachelor of Fine Arts degree was established in the Evening College.

The University's Community

When plans for the new university were taking shape in Mr. Clark's mind, he enlisted the aid of a group of far-sighted and influential Worcester citizens from whom, later, the majority of his original board of trustees was chosen. In this was set a pattern for cooperation between the University and the community which has persisted throughout the history of the institution.

The intellectual life of the city has been strengthened by the contributions of the faculty and of distinguished guests whom the University has brought to Worcester. Members of the staff have served local institutions both public and private in many ways, and a variety of University programs help to enrich the cultural life of Worcester.

The College has opened the door to higher education for hundreds to whom the opportunity would have been denied if they had been forced to seek it elsewhere. The Graduate School has aided more gifted students to proceed to the highest levels of intellectual endeavor. Finally, the Evening College has greatly widened educational opportunities in the community.

In turn, the University has benefited by the support, both financial and intangible, which it has received from the citizens of Worcester. The interchange of services and ideas with the staffs of other Worcester institutions and the opportunity to use their libraries on a reciprocal basis have been invaluable.

The University is conscious that it is a part of the community and that, as such, it has both obligations and benefits. Its steadfast purpose is to strengthen the bonds of mutual interdependence and cooperation.

The University Campus

UNIVERSITY CAMPUS

Clark University is an urban institution, located in the City of Worcester. The University's 25 major buildings are situated on a compact, 35-acre campus across from a large city park. Nearby the campus is the University's athletic field, used for soccer and baseball. In addition, the University owns a tract of 20 acres, known as the Hadwen Arboretum, a few miles from the campus.

Other colleges located near Clark include Worcester Polytechnic Institute, Assumption College, the College of the Holy Cross, Worcester Junior College, Becker Junior College, Quinsigamond Junior College, Anna Maria College and Worcester State College. Also nearby is the famed Worcester Art Museum, the American Antiquarian Society and the Worcester Foundation for Experimental Biology.

CLARK HALL

The first building erected on the campus was Jonas G. Clark Hall, a four-story granite and brick structure in the center of the present campus. It was built in 1887. It houses the offices of the Evening College, the Summer School, the Placement Office, and many of the offices and classrooms of the departments of instruction. In addition, it also contains the Women's Gymnasium, the Language Laboratory and the offices of the Heinz Werner Institute of Developmental Psychology.

SCIENCE BUILDING

Clark's second oldest building is the Science Building, built also in 1887. It was the site of the experimentation and research by Dr. Robert H. Goddard, "Father of the Space Age," and Dr. Albert A. Michelson, America's first Nobel Prize winner. One wing of the building and a portion of its mid-section has been

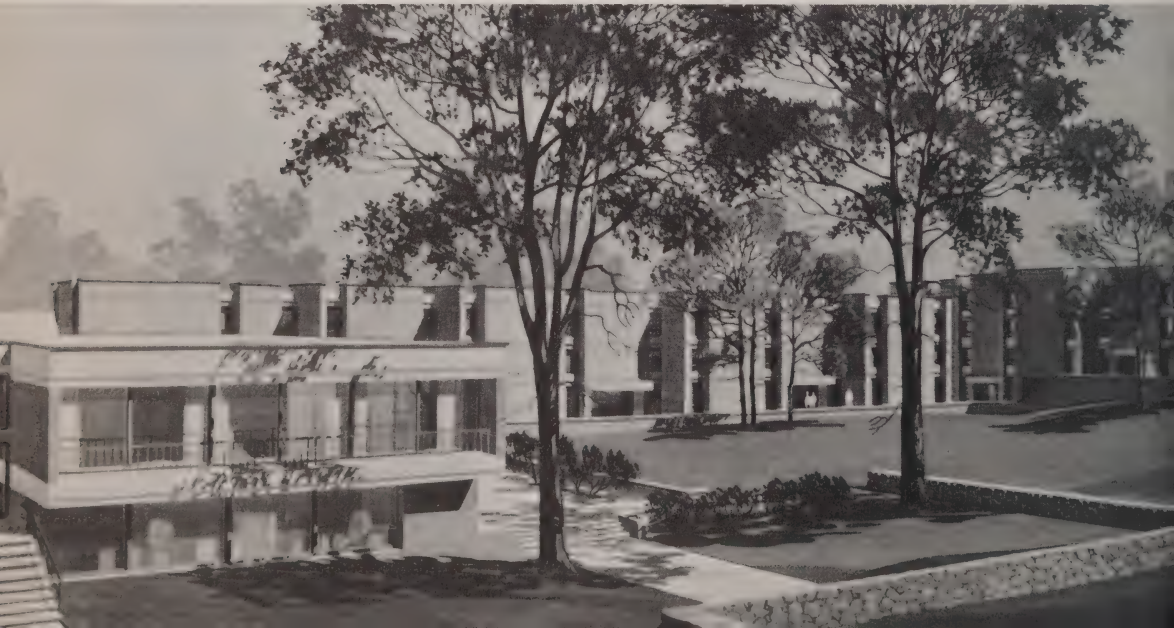
remodeled to provide new research and instruction facilities for the Biology Department. The opposite wing of the same building also has undergone intensive remodeling to provide additional facilities for the Physics Department.

JEPPSON LABORATORY Between these two oldest Clark buildings is one of its newest—Jeppson Laboratory. Completed in 1958, this building has completely modern research and instruction facilities for the Chemistry Department. It houses Johnson Hall, a multipurpose lecture hall seating 174 persons, and Kraus Library, a specialized collection of chemical periodicals.

UNIVERSITY LIBRARY Standing at the opposite corner of the main campus is the University Library in which is housed more than 260,000 volumes and one of the most extensive geographical map and chart collections in the United States. The building also has a music room and language center with appropriate records and literature. A new University Library, to be named for Dr. Robert Hutchings Goddard, is scheduled for completion in September, 1968.

LIBRARY TOWER Attached to the north end of the University Library is the Library Tower, built in 1939 to provide space for the growing library collection. An elevator offers access to eight levels of stacks in the tower.

ATWOOD HALL The lower portion of the Tower contains the stage of Atwood Hall, an 800-seat auditorium used for student assemblies, lectures, concerts and other University functions. Atwood Hall also



contains the Blue Room for smaller lectures and meetings, and the offices and classrooms of the Fine Arts Department.

GEOGRAPHY BUILDING Site of America's first Graduate School of Geography, the Geography Building also houses the offices of the President, Vice President and other administrative officers. It also quarters the editorial offices of *Economic Geography,* a quarterly publication of Clark University.

ESTABROOK HALL The Departments of German, Music, Mathematics and Russian, the University Computer Center, and offices for student organizations are located in newly-remodeled facilities in Estabrook Hall.

ALUMNI GYMNASIUM The Alumni Gymnasium, one of Clark's pre-war buildings, provides a gymnasium seating 800 persons, shower and locker facilities for intramural and intercollegiate athletics, and the offices of the Department of Physical Education. On the second floor is the Alumni Office and Alumni Lounge, a comfortable meeting room for University organizations.

WRIGHT HALL More than 200 men students are quartered in Wright Hall. Completed in 1959, this fireproof brick dormitory provides both double and single rooms, and lounge, study and recreation facilities.

BULLOCK HALL Bullock Hall, a women's dormitory, also completed in 1959, is similar in design to Wright Hall. It houses 137 women students and has lounges and recreation rooms.

NEW RESIDENTIAL CENTER In the fall of 1964 the University opened a new three-building complex for residential students. The first major addition to the campus under Clark's ten-year development program, the facilities include Johnson Hall, a dormitory for 150 women, Sanford Hall, which houses 146 men and the Homer P. Little Student Commons building which contains dining facilities, lounges, and meeting and recreation rooms.

DANA RESIDENCE CENTER A second residence complex, to be named in honor of Mr. Charles A. Dana of Bridgeport, Conn., will be opened in September, 1967. The center will include a dormitory for 150 women, a dormitory for 146 men and a student center, with dining facilities and offices for student organizations.

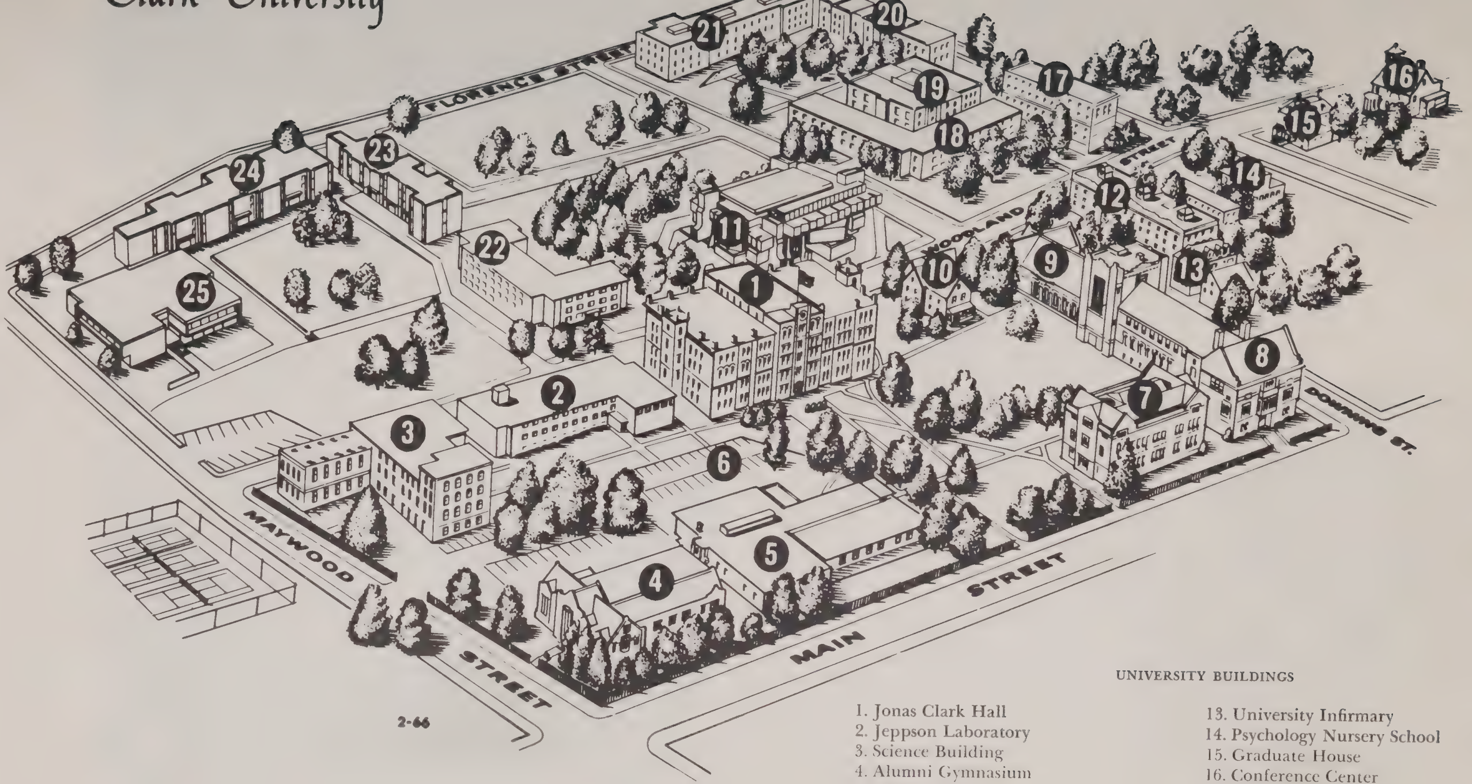
JEFFERSON HALL Clark's first student center—Jefferson Hall—was opened in 1959. Jefferson Hall contains one of the University's dining halls, a snack bar, faculty and student lounges, a recreation room, and the University Bookstore.

ADMINISTRATIVE BUILDING The University Apartments on Downing Street were converted in the summer of 1965 into the main administrative building to house the offices of Admission, the Deans, Registrar, Bursar, Treasurer, Business and Public Relations. The Philosophy Department also is located in this building.

CONFERENCE CENTER Near the main campus is the Conference Center, originally the site of the Institute of Liberal Studies for Executives, but now used for university meetings and functions.

GRADUATE HOUSE The University purchased a large private home in 1961 and has converted it into a Graduate House. It contains living quarters for graduate students as well as a comfortable lounge and kitchen facilities. A number of other private homes near the campus have been purchased in recent years to provide housing for married graduate students and faculty members.

Clark University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DOWNING ST.
MAYWOOD STREET
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UNIVERSITY BUILDINGS

1. Jonas Clark Hall
2. Jeppson Laboratory
3. Science Building
4. Alumni Gymnasium
5. Jefferson Hall
6. Visitors Parking
7. Geography Building
8. The Library
9. Atwood Hall
10. Blakeslee House
11. The Robert Hutchings Goddard Library (to be completed in 1968)
12. Downing Administration Center
13. University Infirmary
14. Psychology Nursery School
15. Graduate House
16. Conference Center
17. Estabrook Hall
18. Wright Hall
19. Little Student Commons
20. Sanford Hall
21. Johnson Hall
22. Bullock Hall
23. New Women's Dormitory*
24. New Men's Dormitory*
25. New Student Commons*

*To be completed in September, 1967 as part of the Dana Residence Center

The University Library

Tilton M. Barron, *Librarian*
Marion Henderson, *Reference Librarian*
Elizabeth Hassinger, *Catalog Librarian*
Betty H. Flagg, *Circulation Librarian*

The Clark University Library contains over 260,000 volumes and some 50,000 maps and charts. The major part of the collection is centrally housed, and an open shelf system fosters free access to books and periodicals for student and scholar. Chemistry periodicals are available for reference at the Kraus Library in Jeppson Laboratory.

The collection reflects the history and growth of the University. The combined scholar's library of the early graduate school and the undergraduate library of Clark College have been developed through the years to serve the academic needs of Clark University. The richest holdings are in the fields in which graduate work is offered—biology, chemistry, economics, education, geography, government, history, international relations, mathematics, physics, psychology, and sociology. More characteristically undergraduate in content are the collections dealing with music, fine arts, language, literature, religion, and philosophy. The Library pays particular attention to major bibliographical and reference tools, and currently receives over 1000 periodicals.

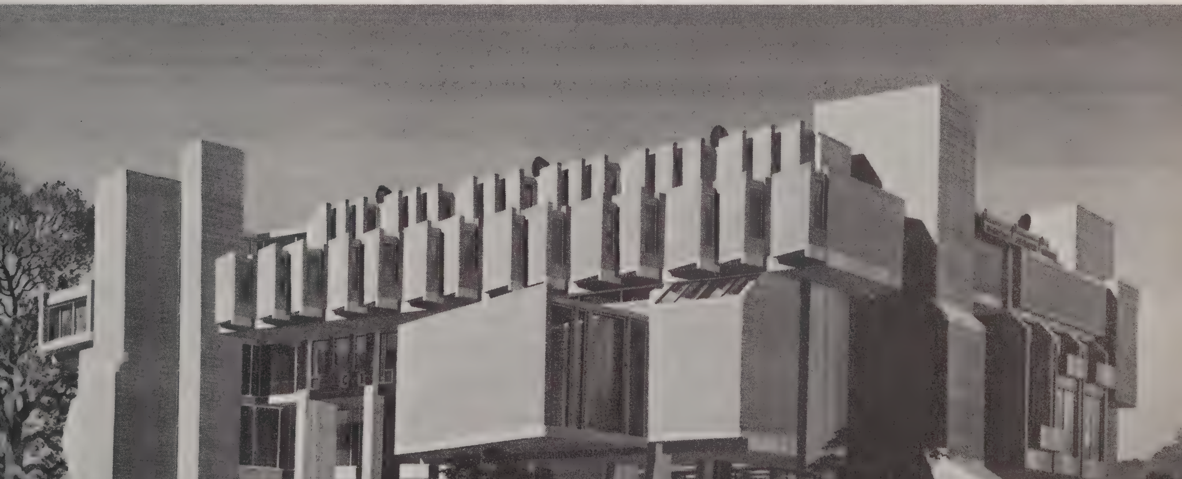
A music library of recordings contains a collection of classical and standard musical works. There is also a listening room in the building.

The Clark University Library coordinates its acquisition of new material and exchanges material with other libraries in the Worcester area.

Construction is currently underway for a new library to house 600,000 volumes and to accommodate 1,100 readers. The new library will be named the Robert Hutchings Goddard Library, in honor of, and as an international memorial to, Dr. Goddard, Father of the Space Age, distinguished alumnus, and professor of physics at Clark from 1914 to 1942.

The University's Future

At a time when higher education is confronted with unprecedented challenges in meeting the nation's needs, Clark University faces the future with comprehensive, thoughtful plans and an ambitious program for their achievement. In establishing ten-year objectives for the University, trustees, faculty, alumni and friends have been aware both of Clark's unusual history and traditions, and the critical national need for expanded educational services and facilities. Reflecting these considerations, Clark's goal is to hold steadfast to its traditions as a university concerned with scholarship of the highest possible order, and offering graduate work to and beyond the doctorate in selected fields of study. Too, the University aims to preserve—and enhance—the unusually close relationship which exists between undergraduate and graduate education at Clark, thus maintaining one of its most unique features: an intellectual atmosphere which combines the spirit of creative discovery found in the large university with the intimate, personal relationships which are found in the small liberal arts college. Finally, while continuing to foster the values of smallness in every possible way, the University is undertaking planned and limited expansion to an enrollment of 1800 students by 1972, the 85th anniversary of the granting of its charter.



In pursuit of these goals, the trustees have established THE CLARK PROGRAM, a comprehensive, ten-year development effort whose objective is to secure nearly $21 million in new resources by 1972. Of the total sought, $8 million will be required to support endowed professorships, faculty salaries, scholarships and special programs to enrich the educational experience at Clark. The remaining $12.8 million will be applied toward the realization of Clark's *Campus of Tomorrow,* a long range plan for campus development.

Since the commencement of THE CLARK PROGRAM in May, 1962, rapid progress has been made toward its goals. At the end of four years more than $11 million in resources had been secured, and the University had been strengthened by an additional endowed chair, a handsome $2.5 million residential complex, a new central heating plant, and a number of other significant additions to its physical and financial resources.

Major CLARK PROGRAM projects currently under way include creation of the Robert Hutchings Goddard Library and the Charles A. Dana Residence Center. The Goddard Library, which is to be the international academic memorial to the father of the space age, will be located at the center of the University's developing campus. To be completed in 1968, the $5 million structure will include a memorial area housing the priceless scientific and personal papers of the former Clark alumnus, faculty member and rocket pioneer. The Goddard Library will also be the site of a national memorial sculpture to be commissioned by the National Aeronautics and Space Administration under authority of legislation passed by the 89th Congress and signed into law by President Lyndon B. Johnson in November, 1965.

The Dana Center, named in honor of Charles A. Dana, distinguished industrialist and philanthropist, will include two new residence halls housing 296 students and a commons building. The latter will provide offices and meeting rooms for student organizations, and a model council chamber for student government meetings. The Center is scheduled for occupancy in September, 1967.

THE CLARK PROGRAM is the largest undertaking of its kind in the University's history—a program rooted in conviction about the importance of what higher education means at Clark, and pursued with confidence that success will be achieved.

BEQUESTS AND DEFERRED GIFTS TO THE UNIVERSITY

Bequests have always been, and will continue to be, an extremely important means of ensuring the continued growth and strengthening of independent educational institutions such as Clark University. For persons who wish to provide for the University in their estate plans, the following basic legal forms are presented with the suggestion that they be reviewed by an individual's legal counsel. Other forms are available upon request to the Office of the President.

Unrestricted Bequest

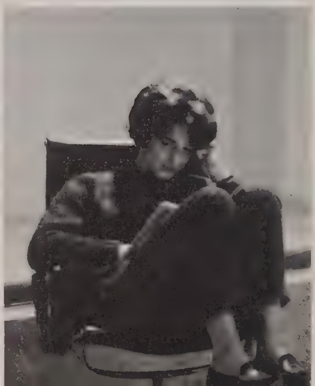
"I give and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here insert the amount of money and/or describe the personal property or real estate)."

Restricted Bequest

"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here describe the gift to be used or the income to be used) for the following purposes (here specify the purposes for which the gift or the income therefrom is to be used).

In addition to legacies, there are other methods of providing for the University in estate plans. Gift Annuities, Life Income Plans, and Trusts are available at Clark through its Deferred Gifts Program. Specific information may be obtained by writing to the Office of the President. The University will be glad to consult, on a strictly confidential basis, with individuals and their counselors about these other ways of enriching the University.

For purposes of making a gift by will to Clark, the University's legal corporate title is: TRUSTEES OF CLARK UNIVERSITY.



THE UNDERGRADUATE COLLEGES

The Colleges

CLARK COLLEGE

Clark College (the undergraduate men's division) and the Women's College constitute the primary undergraduate divisions of the University. Educationally they operate as a unit, and admission and degree requirements are identical in the two colleges. Both offer academic programs in the liberal arts.

LIBERAL ARTS

The liberal arts program provides for breadth of knowledge and understanding together with the intellectual discipline resulting from concentration in a selected field of special interest. The program, leading to the degree of Bachelor of Arts, possesses a large degree of flexibility permitting adaptation to a wide variety of individual interests.

Admission

FRESHMAN ADMISSION

Clark University welcomes applications for admission from men and women whose backgrounds show them to be prepared to join in the life of an intellectual community.

Selection is on a competitive basis with particular emphasis upon scholastic achievement. Applications are subject to final approval by the Admissions Committee, comprised of members of the faculty and the admissions officers.

APPLICATIONS

Candidates for admission are encouraged to submit their applications as early as possible during the first semester of their final year of secondary school education. All applications must be received by *March 1.* An application fee of ten dollars, nonrefundable, must accompany each application.

ENTRANCE REQUIREMENTS

General: The completion of a four-year high school program or its equivalent, including a minimum of 16 acceptable units of credit, is required for admission to the freshman class. (The term "unit" means a course of study in one subject taken through a school year.) Official records from all secondary schools attended must be submitted.

Subject-Matter Requirements: For admission to the freshman class the subject-matter requirements are as follows:

Required Subjects, 8 units	
English	4 units
Mathematics (algebra and geometry) (Applicants planning to specialize in science or mathematics are advised to present three or more units of mathematics.)	2 units
Foreign Language (in a single language)	2 units
Restricted Electives, 5 or more units	
Social Studies (history, government, civics, etc.)	1 to 4 units
Natural Sciences (biology, chemistry, physics, etc.)	1 to 4 units
Mathematics	1 to 2 units
Foreign Language (A single unit in a beginning foreign language is not acceptable.)	1 to 4 units

Free Electives, not more than 4 units

Subjects recognized by the applicant's secondary school in its regular program, at the discretion of the Admissions Committee.

Entrance Examination Requirements: All applicants must arrange during their senior year to take and submit the results of the Scholastic Aptitude Test, as administered by the College Entrance Examination Board, prior to final consideration by the Admissions Committee. The December administration of this test is preferred.

To assist the College in determining proper placement in courses, applicants are required to submit the results of three Achievement Tests of the College Entrance Examination Board. The senior year English Composition Achievement is required of all applicants. Unless a student is taking a foreign language during the final year of secondary education and plans to continue it upon entrance to Clark—in which case the Achievement in that language must be submitted—the remaining two tests are his free choice.

Senior year Achievement Tests are preferred. However, Achievements taken at the end of a terminal course of study will be accepted.

Further information concerning these testing programs may be obtained from the applicant's secondary school guidance counselor, or from the College Entrance Examination Board. The College Entrance Examination Board may be addressed in the East at Post Office Box 592, Princeton, New Jersey; in the Far West at Post Office Box 9896, Los Feliz Station, Los Angeles 27, California.

Campus Interview: Interviews are available to all students who wish to investigate the prospect of attending Clark University, regardless of whether formal application has been made or not. All applicants who reside within 400 miles of Worcester are required to arrange and attend an on-campus interview prior to consideration of their application. Candidates for admission who reside more than 400 miles from Worcester are encouraged to attend an on-campus interview whenever it is possible.

The Admissions Office, located on the first floor of the Administration Building, is open Monday through Friday, 9:00 a.m. until 5:00 p.m., throughout the year, excluding national holidays, and on Saturday between 9:00 a.m. and 12:00 noon, from October 1 to March 1. Arrangements for personal interviews and campus tours may be made by writing or telephoning the Admissions Office, preferably at least two weeks in advance of the desired date.

Students planning to visit the campus during the summer months also may arrange, in advance of their arrival, for personal interviews.

BASIC FRESHMEN EXPENSES

Basic expenses in the Freshmen year at Clark total approximately $2,770 to $2,945, as follows:

Tuition		$1,700
Board		600
Room		$400-575
Fees		70
Induction	$10.00	
Laboratory	30.00	
Activities	30.00	
		$2,770-$2,945

A schedule of all University undergraduate charges appears on Page 56.

NOTIFICATION OF ADMISSION AND DEPOSIT

Notification of admission to the incoming freshman class is at the discretion of the Admissions Committee, and will normally begin on or about April 1. No consideration will be given to an applicant until all previously stated requirements have been fulfilled.

Upon receipt of an offer of formal admission a student will be required to indicate acceptance of the offer by making an admission deposit of $50, non-refundable, to reserve a place within the incoming class. This deposit will be credited towards the charges for the first semester.

HOUSING ARRANGEMENTS

All freshmen not living with their parents, legal guardian, spouse, or adult member of the immediate family are required to take up residence within University operated dormitory facilities. Rooms will be assigned during the summer prior to the arrival of the freshman class. Inquiries concerning living arrangements should be sent to the Office of the Dean of Students (men) or the Dean of Women.

TRANSFER APPLICANTS

Clark University will consider a limited number of academically qualified applicants for transfer from both four-year colleges and universities, and two-year colleges.

TRANSFER REQUIREMENTS

All applicants for admission under the transfer program are required to submit evidence of honorable dismissal, complete transcripts of all previous academic records, including the results of all College Entrance Examination Board tests, and such other information as the Admissions Committee may request. An on-campus interview is required. No application will be considered for admission until all requirements have been satisfied.

TRANSFER CREDIT

Credit will normally be given for courses previously taken at accredited colleges or universities if these courses are comparable to those offered within the Clark University curriculum. Credit for courses previously taken at non-accredited colleges is granted only on a provisional basis to be evaluated upon successful completion of two semesters of work at Clark with a cumulative average of 1.7. No credit will be given for any course completed with a grade lower than C-minus.

Evaluation of credits for college courses completed elsewhere will be made at the time of a student's first registration at Clark and will be used in planning his course program and in classifying him provisionally as a freshman, sophomore or junior.

A graduate of the three-year course of the School of the Worcester Art Museum may be admitted as a candidate for the degree of Bachelor of Arts with the rank of junior in the College. In such cases the usual admission requirements must be met and the general subject-matter requirements for the degree must be satisfied.

FOREIGN STUDENTS

Clark University is favorably disposed to receive applications for admission from foreign students. However, the University is unable to provide financial aid to cover the major portion of a foreign student's educational expenses. Each foreign student accepted for admission must have medical insurance, preferably that available from the Institute of International Education.

Applications from foreign students will not be considered if received after May 1. Foreign students whose native tongue is not English must be able to satisfy the University requirements for proficiency in the English language.

SPECIAL STUDENTS AND AUDITORS

Persons who are not prospective degree candidates, who may wish to take advantage of the opportunities for study provided by the University and who give satisfactory evidence of adequate preparation for the work which they wish to undertake may apply for admission under the status of Special Student. Inquiries concerning this category of student should be addressed to the Office of Admissions.

At the discretion of the administrative officers of the University, Auditors, registered for attendance but not for credit, may be admitted. They are required to pay the regular tuition rates and the matriculation fee, but are not enrolled as students.

SUMMER SCHOOL AND EVENING COLLEGE

Persons who may wish to be candidates for a degree or who may wish to take advantage of the opportunities for study provided by the Summer School or The Evening College are invited to send inquiries concerning admission, programs available, or other questions to the Office of the Director of The Evening College and Summer School, Clark University.

WITHDRAWAL

The University reserves the right to require the withdrawal of a student whose academic performance or conduct fails to meet required standards.

Financial Aid

GENERAL INFORMATION

Scholarships, grants and loans are provided by the University from endowed and special funds. Other scholarships, grants and loans are available from various public and private sources.

SCHOLARSHIPS

Scholarship aid is awarded on the basis of financial need and ability. Jonas Clark Scholarships are awarded for four years contingent upon continued financial need (as evidenced by the Renewal Parents' Confidential Statement) and academic achievement. All scholarships (with the exception of freshman scholarships) are reviewed each semester for academic achievement. Upperclassmen with satisfactory academic records may apply for financial aid at the beginning of any semester. To do so, they must submit the Renewal Parents' Confidential Statement, which may be obtained from the Financial Aid Office of the University. Transfer students may apply for financial aid for their first semester of residence.

Incoming freshmen applying for financial assistance do so through the College Scholarship Service, Box 176, Princeton, New Jersey or, for the Far West, Box 27896, Los Angeles 27, California. The service provides the University with an independent analysis of the applicant's financial needs. The application (Parents' Confidential Statement) may be obtained at the student's secondary school or from the College Scholarship Service and should be submitted to the College Scholarship Service at the same time that the student applies for admission. In order to receive financial aid consideration at Clark the Parents' Confidential Statement must be submitted prior to *February 1.* No other financial aid application is necessary. Qualified students are notified about financial aid awards shortly after they receive the decision of their admission. Upperclassmen must reapply annually for financial aid by submitting the Renewal Parents' Confidential Statement, which may be obtained from the Financial Aid Office of the University.

GRANTS

The Federal Educational Opportunity Grants are part of a new Federal program of assistance to college students. They are grants, not loans, and are renewable on a yearly basis. The grants are specifically set aside for students from low income families.

LOANS

Students who find it necessary to borrow money to continue their education may do so through various sources:

The National Defense Act Student Loan Program provides funds for long-term loans which bear no interest until a student has completed full-time study. Normally a person borrowing from these funds will repay the amount over a ten-year period. Graduates who enter public or private school teaching at the elementary or secondary level are eligible to have up to 50 per cent of their loan excused if they remain in teaching for a five-year period. National Defense Student Loans are granted on the basis of financial need and available funds. All National Defense Loan commitments are made contingent on Congressional appropriation of funds annually for this program.

Guaranteed Loan Program: Under Title IV of the Higher Education Act of 1965, a new loan program aimed primarily at middle income families has been created. Undergraduates may borrow up to $1,000 yearly; graduate students up to $1,500. Students whose families have adjusted incomes of $15,000 or under will have a portion of the interest paid by the Government. Since the program is not completely operative in all states at this time, it would be advisable for students interested in this program to contact their local banks.

Clark Loans: Clark maintains low interest, short-term, loan funds with interest and repayment commencing after graduation. These loans are available only to upperclassmen.

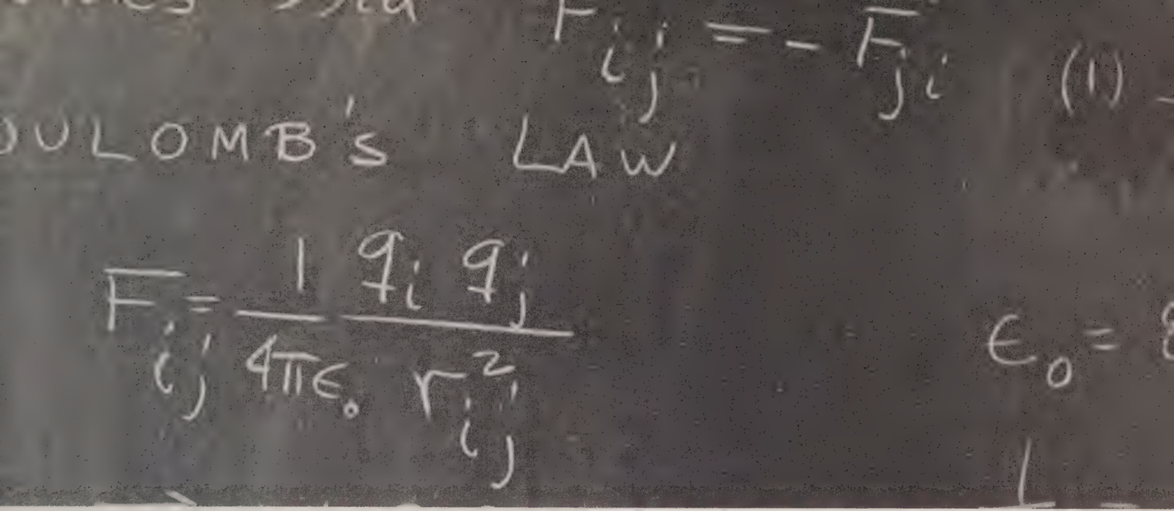
Other Loan Programs: Commercial deferred or extended payment plans such as various State Loan Programs, The Tuition Plan, Inc., Education Funds Inc. and Funds for Education, Inc. also are available and should be carefully considered by the applicant. Information concerning State Loan Programs is available at local banks.

PART-TIME EMPLOYMENT

A limited amount of part-time employment is available in various offices and departments of the University, and in the Worcester community.

WORK-STUDY PROGRAM

The University actively participates in the College Work-Study Program (Title I, Part C) under the Economic Opportunity Act of 1964. Qualified students from low-income families may obtain further information about this program from the Financial Aid Office of the University.



Further details on all forms of Financial Aid at the University may be obtained by writing to the Financial Aid Officer in care of the Admissions Office.

AUTOMOBILES Scholarship recipients are prohibited from maintaining or operating automobiles while in attendance at the College.

SCHOLARSHIP FUNDS The following scholarships are currently available from University funds:

The Reginald Bryant Allen Fund: The income from this fund is to be awarded annually to a deserving student majoring in mathematics.

The Alumni Group Scholarship: A scholarship to an accredited freshman is awarded from a fund established by the trustees and the first three classes to graduate from Clark College, '05, '06 and '07.

The Worcester Art Museum Scholarships: Scholarships are available to Clark students who are enrolled in the affiliated School of the Worcester Art Museum as Fine Arts majors.

The B'nai B'rith Scholarship: The Worcester Chapter, Order of B'nai B'rith, provides a scholarship primarily but not exclusively for the aid of Jewish students.

The Gertrude and William Brodie Award: Established in 1966 by a bequest of William Brodie, '25, the income from this fund is awarded each year to assist a deserving Clark undergraduate.

The Charles W. and Annie L. Bruninghaus Fund: The income from this fund, established in 1957, provides scholarship aid to undergraduates.

The Charles T. Bumer Memorial Scholarships: Up to four full tuition scholarships, one of which includes tuition, room and board, are awarded annually to entering freshmen. These scholarships are granted to outstanding freshman applicants and are named in honor of the late Dr. Bumer, a professor of mathematics at Clark from 1948 to 1960 and chairman of that department.

The Jonas G. Clark Scholarships: These scholarships have been established by the trustees to provide financial aid for undergraduate students.

The Clark University Faculty Women's Club Scholarships: These scholarships are available to undergraduate students, either men or women, who rank high in intellectual and personal qualities.

The Albert C. Erickson Scholarship: Established by the Tupper Foundation to honor an outstanding Clark student and teacher whose death in 1936 terminated a brilliant career in mathematical physics, this scholarship is awarded annually to an undergraduate, normally near the end of his junior year, who has done outstanding work in physics and mathematics and who shows unusual promise in these fields.

The A. D. R. Fraser Scholarship: Established in 1964 by the Directors of the Herbert T. Dyett Foundation of Rome, New York in honor of Mr. A. D. R. Fraser '22, a trustee of the University, this scholarship is awarded to a deserving student at Clark from the city of Rome, New York, or lacking a qualified candidate from Rome, from Oneida County, New York.

The Aaron Fuchs Memorial Scholarship Fund: Given by Mrs. Celia Fuchs in memory of her husband and in honor of her sons, Lawrence, '44, and Jerome, '53, this fund provides scholarship aid for non-residents of Worcester or Worcester County.

The High School Basketball Tournament Scholarship: Receipts of the High School Basketball Tournament held annually at Clark provide assistance to male undergraduates from Worcester County.

The Gertrude & Eva Hillman Scholarship: Established in the memory of the sister and mother of Archibald M. Hillman to honor worthy students at the University.

The Ellis-Hubley Competitive Scholarships: These are competitive scholarships restricted to male residents of Worcester or neighboring towns who have graduated from secondary schools in those areas. The scholarship accords full tuition plus a stipend and is awarded annually without regard to financial need. The award is normally continued throughout the four years of College. Up to three other full tuition scholarships are awarded annually to applicants who, in the judgment of the Scholarship Committee, rank next to the successful candidate. A candidate must receive the recommendation of his secondary school principal and must also be interviewed by the Scholarship Committee.

Funds for these scholarships are awarded from the income of funds bequeathed in memory of Gordon A. Hubley, Clark '10, and of Theodore T. and Mary G. Ellis.

The Levi Knowlton Fund: A bequest of Mary H. Nixon in honor of her father, Levi Knowlton, to provide scholarship aid to undergraduates.

The Homer Payson Little Scholarship in Geology: Established in 1965 by an annoymous donor in appreciation of the development of the Department of Geology, the income from this fund provides an annual scholarship to a student majoring in Geology who has demonstrated scholarly achievement in Geology.

The Livermore and Ambulance Scholarship: The endowment for this scholarship was provided by citizens of Worcester in honor of Charles Randall Livermore, first Clark man to fall in battle in World War I, and of his companions in the Clark Unit of Ambulance Drivers. The scholarship is for male students who are residents of Worcester County.

The National Council of Jewish Women Scholarship: The Worcester section, National Council of Jewish Women, awards a scholarship each year to a Jewish student of the Women's College who resides in Worcester County.

The Alice Friend Newton Memorial Scholarship: This scholarship provides assistance for an upperclass student in the Women's College whose major is psychology.

The Abraham Persky Scholarship Fund: The income of this fund is used to assist deserving undergraduates.

Pleiades Scholarship: This scholarship is awarded annually to a member of the Women's College on the basis of active citizenship, scholarship and financial need from funds raised by Pleiades, senior women's honorary society.

The Charles B. Randolph Fund: The fund is restricted to male students, preferably those whose major is a foreign language.

The Helen Brewster Randolph Memorial Scholarship: Established by the late Professor Charles B. Randolph in memory of

his mother, the fund provides scholarships restricted to male college students.

The Jennie L. Richardson Scholarship: This scholarship was established by a bequest of Carlton E. Richardson, Clark '08, as a memorial to his mother. The income of this fund is available for female students of the Protestant faith.

The William Richardson Scholarship: This scholarship was established by a bequest of Carlton E. Richardson, Clark '08, as a memorial to his father. The income of this fund is available preferably for male students of the Protestant faith.

The Sanford Memorial Scholarship: Established by alumni in honor of Edmund C. Sanford, president of Clark College from 1909 to 1920, the fund provides an annual scholarship for a male senior undergraduate.

The Whitman Scholarship: Named in honor of Ernest R. Whitman, long-time athletic director at Clark, this scholarship offers full tuition, plus a yearly stipend if the recipient is a resident student, and is awarded to students, usually men, whose qualities of leadership in classroom and school are outstanding.

The Henry A. Willis Scholarships: Male students from Fitchburg, Mass., and vicinity have first consideration in the award of these scholarships. In the absence of suitable candidates from this community, grants may be made to others.

LOAN FUNDS

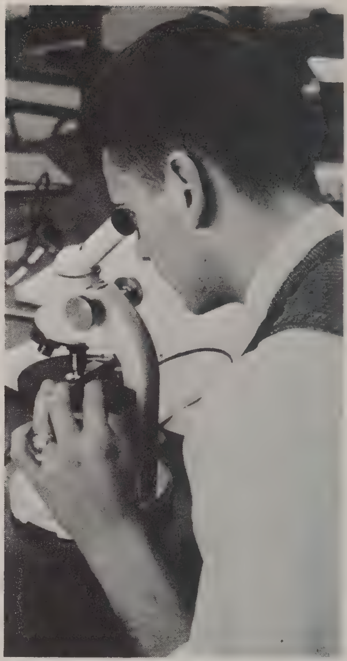
The following loan funds are currently available to undergraduates:

The Alumni Loan Fund: Established by the trustees and alumni for undergraduate assistance.

The May S. Rogers Loan Fund: The fund is available to undergraduates who need loan assistance.

The Haskell Talamo Loan Fund: The fund has been established by relatives and friends of the late Dr. Haskell Talamo, Clark '16.

The Louis N. Wilson Fund: The fund was established by the first librarian of Clark, as a loan source for male students in the College.



The Academic Programs

GROUPS

Course credit may be obtained at the undergraduate level in the following fields of instruction which, for administrative purposes, are known as "groups."

Group A. Science and Mathematics: Biology, chemistry, experimental psychology, geology, mathematics and physics.

Group B. Social Sciences: Economics, education, geography, government, history, international relations, linguistics, philosophy, psychology and sociology.

Group C. Language and Literature: Greek, Latin, English, French, German, Spanish, Russian, and comparative literature.

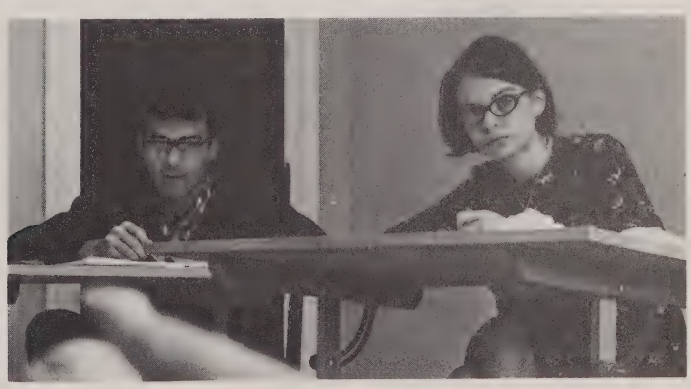
Group D. Fine Arts: Art and music.

MAJORS A student may major in biology, chemistry, classics, economics, English, geography, geology, German, government, history, international relations, mathematics, music, philosophy, physics, psychology, sociology or Romance languages. A major in fine arts is offered through a program given in cooperation by Clark and the School of the Worcester Art Museum. Courses in education are offered, but a major is not available.

GENERAL EDUCATION Many courses at Clark offer the student an opportunity to obtain a core of information and of ideas which will be possessed in common with many of his contemporaries and to stimulate intelligent and critical interest in fields of learning where he has no expectation of attaining professional competence. In choosing his program, the undergraduate is urged to supplement his major with courses of this character.

STUDENT PROGRAMS The undergraduate normally carries a full program of from 12 to 17 semester hours inclusive each semester. In addition, he must meet the requirement for physical education. In general, a course meets three times weekly. Laboratory periods are usually three hours long. Students should consult their faculty adviser or major department when questions of course or program selection arise. Permission to carry a reduced or expanded program must ordinarily be secured from the College Board.

INDEPENDENT STUDY PERIOD A three-week period immediately following the mid-semester recess is set aside for independent study. During this period, the student is required to work on a special project which he has



chosen from a list of offerings prepared by faculty members or which is of his own choosing with the approval of a faculty member. Programs of extracurricular activities, including athletics, drama, music and lectures, continue as usual during the Independent Study Period.

INDUCTION

Freshmen and transfer students must attend an induction program held on the campus several days before the academic year begins. During the induction program, placement examinations and other tests are given. Students attend individual and group conferences in preparation to register for a program of studies.

FACULTY ADVISERS

A freshman is assigned a faculty member who advises the student on a program of courses and on other matters. After the freshman year, students are encouraged to select an adviser of their own choosing. A change of advisers may be made on formal request addressed to the appropriate Dean.

REGISTRATION

Each student is required to register for a specific program of courses before every semester. The student will be given notice in advance of the dates on which registration is required. Failure to register within the announced period is penalized by a late registration fee.

FRESHMAN ACADEMIC PROGRAM

A freshman must choose his entire program from courses which are open to freshmen. All freshmen are required to take a course in literature taught in English, a Group A course, a Group B course and an elective. Students especially qualified by preparation, performance and interest may elect a second laboratory science in place of a Group B course.

ADVANCED PLACEMENT

Placement in advanced courses is determined by individual performance on special departmental placement examinations or, in some instances, on the Advanced Placement and Achievement Tests of the College Entrance Examination Board. College credit for certain courses completed in high school may also be granted toward the bachelor's degrees on the basis of the College Entrance Examination Board Advanced Placement Tests.

SOPHOMORE PROGRAMS

A sophomore must give priority in his program to any general degree requirements which remain to be satisfied and should provide for an introduction to the field or subject in which a major is chosen. The remaining elective choices provide the student opportunity to broaden the range of his interests.

Tentative selection of a major is required of A.B. degree candidates at the time of registration for the sophomore year.

Sophomores may elect any course designated by a number beginning with the numeral 1, indicating the course is primarily for undergraduates. They are not admitted to courses designated by a number beginning with the numeral 2, except by permission of the instructor and the department chairman concerned, to whom the student must present evidence of high class standing and/or adequate preparation.

JUNIOR-SENIOR PROGRAMS

Juniors and seniors should plan their courses carefully and in consultation with their faculty advisers. However, these students may elect any courses designated by numbers beginning with 1 or 2, indicating courses which are primarily for undergraduates or for advanced undergraduates and graduate students. The selection by juniors and seniors of these courses is subject to any conditions stated in the course description.

Under special conditions and with the approval of the Chairman of College Board and the Dean of the Graduate School in each case, seniors who rank in the upper third of their class may be admitted to courses designated by numbers beginning with the numeral 3, indicating courses which are primarily for graduate students.

READINGS OR SPECIAL PROJECTS COURSES

Some departments offer readings or special projects courses which may be entered with the permission of the instructor concerned. No student, however, may register for more than eight semester hours of such courses during a given semester or for more than twenty-four semester hours of such courses during his college career.

ACCELERATED PROGRAMS

A student may earn the Bachelor's degree in less than four academic years, provided he is prepared to make the additional effort which is required and is able to maintain the required level of scholarship.

Such accelerated programs are possible through a combination of Advanced Placement credit, a larger than normal program of studies and attendance at summer schools. Credit toward a degree for study at a summer school other than the Clark Summer School must be approved by the Registrar no later than Registration Day of the following semester. Students are strongly advised to confer with the Registrar prior to taking summer school courses to assure acceptability of credit toward the Clark degree.

EXPANDED PROGRAMS

A student whose grade point average for any semester is 2.3 or better may register for a program of more than 17 but no more than 20 semester hours for the following semester.

A senior whose graduation within the academic year depends on the completion of an expanded program during that year may register for more than 17 but no more than 20 semester hours if his grade point average for the preceding semester is 1.7 or better.

WASHINGTON SEMESTER PROGRAM

Clark participates in the Washington Semester program of the American University in Washington, D. C. Under the program, a small number of superior students may be nominated to attend the program, usually in the junior year, studying United States government in the nation's capital. Though any student may be interested in the program, the opportunity should be particularly attractive to students majoring in government, international relations, history, economics or sociology. A credit of 15 semester hours is given for the program toward the Bachelor's degree at Clark. Inquiry and application should be made to the chairman of the Department of History, Government and International Relations.

JUNIOR YEAR ABROAD In cooperation with such organizations as The Experiment In International Living, The Institute of European Studies, the Jacob Hiatt Institute in Israel and several American colleges and universities, Clark offers its students the opportunity of spending all or a portion of their junior year abroad. These and other programs of foreign study involving academic credit must have prior approval of the College Board.

PARTIAL PROGRAMS Under special circumstances, students may be permitted to register for a semester program of less than 12 semester hours. Such students are designated as part-time students and are excused from the requirement in physical education.

SPECIAL STUDENTS Special students register for such programs as they agree upon in consultation with the instructors concerned. They are excused from the requirement in physical education.

PRE-PROFESSIONAL PROGRAMS One function of the undergraduate colleges is to prepare students who intend to enter a professional school or take graduate study. Students entering Clark may gain this basic preparation through the selection of the appropriate major. A student planning a professional career should consult with his adviser as early as possible in his college career to best select an undergraduate program.

Pre-medical, pre-dental or pre-nursing students can satisfy pre-professional requirements for entrance into a medical, dental or nursing school by taking necessary basic courses in biology, chemistry or physics. For students planning careers in teaching, Clark offers courses necessary for state certification. It also offers a graduate program in education. For information concerning teaching requirements, consult the Education Department section under the listing of "Departments and Courses."

Pre-law students are not limited to the selection of a particular major or a fixed group of studies; some attention to the social sciences is generally favored. Undergraduates planning to attend law schools are advised to seek a broad liberal arts education.

Requirements for a Bachelor's Degree

GENERAL REQUIREMENTS

Residence: Normally at least sixty semester hours of the total one hundred and twenty semester hours required for the Bachelor's degree must be taken at Clark University. Of these no fewer than thirty of the last sixty semester hours must be completed at Clark. Permission for a student to take all or part of his work during the senior year at another institution may be granted, by the College Board only, in exceptional circumstances, especially when an unusual educational opportunity is presented.

Course Requirements: All College regulations concerned with credit toward a degree are expressed in terms of semester hours. In undergraduate courses, a semester hour as a unit of credit normally implies one class meeting of approximately fifty minutes in duration or one laboratory exercise of two or three hours duration per week throughout one semester. One hundred and twenty semester hours at a satisfactory level of scholarship are required for the Bachelor's degree.

Physical Education: Two hours per week of physical education is required of freshmen and sophomores. A fee of $50 will be charged to any student who has an *unexcused* failure in any semester in the two-year men's physical education requirement. A proportionate fee will be charged to women students who have an *unexcused* failure in any portion of the women's physical education requirements.

MAJOR REQUIREMENTS

Major: A departmental major consists of courses designated by the department for this purpose and totals at least forty but no more than fifty semester hours. At least half but no more than three-quarters of these semester hours must be in the major subject; the remaining hours must be in other fields of study as designated by the major department. A grade point average of 2.0 or better must be attained in at least forty semester hours of courses in the major and related fields.

Mathematics 11 or 12 is a freshman year requirement for all students intending to major in Group A—Science and Mathematics.

DISTRIBUTION REQUIREMENTS

In order to insure academic breadth, the University expects students to satisfy the following distribution requirements. However, a student may, without prejudice or penalty, waive any single *one* of the seven listed requirements. See reference to "Groups" on Page 40.

**Group A—Science and Mathematics:* The student must take and pass courses totalling at least six semester hours in each of two fields of study. At least six semester hours must be in courses which include laboratory experience. (2 Requirements)

**Group B—Social Science:* The student must take and pass courses totalling at least six semester hours in each of two fields of study. (2 Requirements)

**Foreign Language:* The student must take and pass at least six semester hours of a foreign language at or beyond the third year college level. However, freshmen whose placement tests show them ready for such a third year course may fulfill this requirement by passing twelve semester hours of a second foreign language. (1 Requirement)

**Literature:* The student must take and pass six semester hours in literature taught in English. A student who chooses to fulfill this requirement in English or American literature must take and pass English 10a, Introduction to Literature, before entering an advanced literature course. (1 Requirement)

**Fine Arts:* The student must take and pass three semester hours in art or music. (1 Requirement)

INDEPENDENT STUDY

Independent Study: The student must complete with a grade of *pass* work undertaken during each of the independent study periods following any fall semester in which he is in residence. In no case, however, will a student be required to undertake independent study during more than four such periods.

Academic Regulations

GRADES

Grades are reported to each student at the end of each semester. The grades are A—excellent; B—good; C—average; D—poor; and F—failure. The modifying symbols, plus and minus, are used with each of these letter grades, except F, giving 12 levels of passing grades. A report of incomplete is permitted only when sickness or some other unavoidable circumstance prevents the completion of a course.

A *grade point average* is determined for each student at the end of each semester by multiplying the credit in semester hours of each course in which the student is registered by a *grade point* or numerical equivalent of the letter grade received by the student and dividing the result by the total number of semester hours for which the student is registered. The grade points used for the calculation of averages are as follows:

A+=4.3 B+=3.3 C+=2.3 D+=1.3 F=0
A =4.0 B =3.0 C =2.0 D =1.0
A—=3.7 B—=2.7 C—=1.7 D—=0.7

A record of failure in a course is final and not subject to change on the basis of any subsequent performance of the student who is involved. Credit for a course in which a failure has been reported may be secured only by repeating the course and earning a passing grade.

A record of incomplete incurred in the first semester must be made up no later than the following April 1; if incurred in the second semester or summer term, it must be made up no later than the following October 15. If a course is not completed within the specified time, the record of incomplete is changed to one of technical failure.

REPORTING GRADES TO OUTSIDE SOURCES

Unless a student indicates in writing to the Dean of Students that he wishes it not be done in his case, information concerning academic performance will be released upon request to high schools attended by the student, to scholarship sources, to prospective employers and to selective service boards.

WITHDRAWAL FROM COURSES

A student may, by presenting an appropriate withdrawal form to the Registrar, be allowed to withdraw from a course without a record of failure at any time during the first four weeks of classes, regardless of the grade he has thus far attained in that course, providing that, after withdrawal, he be carrying no fewer than twelve semester hours.

At any time after the first four weeks of classes and up until two class-weeks before the beginning of the final examination period, the Chairman of the College Board may permit a student to withdraw from a course without a record of failure providing the student is not failing that course at the time of request and that after withdrawal he be carrying no fewer than twelve semester hours.

COURSE CHANGES

A student may register for a course without special permission anytime up to the end of the second week of classes. Between the second week and mid-semester he may enter with the permission of the instructor and advisor (without petition).

ACADEMIC STANDARDS

Candidates for the Bachelor's degree must obtain a final cumulative average of at least 1.85 in all courses taken at Clark.

CLASSIFICATION OF STUDENTS

All students who have not been required to withdraw at the end of a given semester will be promoted if they have satisfactorily completed the following semester hours:

To the sophomore class	24 sem. hrs.
To the junior class	54 sem. hrs.
To the senior class	84 sem. hrs.

PROBATION

Freshmen and Sophomores who receive a semester grade point average of less than 1.60, Juniors and Seniors who receive a semester grade point average of less than 1.70, and students who receive more than one failure in any semester will automatically be placed on probation.

DISMISSAL

Students may be required to withdraw after two consecutive or three non-consecutive probationary-level semesters.

EXAMINATIONS Final examinations are regularly given at the end of each semester in most College courses. Approximately one week is set aside for each examination period and an attempt is made to distribute the examinations for any individual student throughout this period. Absence from a final examination, except for the most compelling reasons, usually results in a record of failure in the course. Other examinations and tests may be given at any time during the semester at the convenience of the instructors.

CLASS ATTENDANCE The College has no class attendance requirements. However, instructors have the prerogative of establishing such requirements for their own courses.

LEAVES OF ABSENCE A student who is in good standing may apply to the College Board for a leave of absence. Such leaves are granted for a period of one or two semesters during which the student's records are kept active. At the conclusion of the period of leave, the student may return to the University without formal application for readmission.

Honors, Awards, and Prizes

ANNUAL HONORS

First honors and second honors are awarded at the end of each year to members of the freshman, sophomore and junior classes who have, in the judgment of the College Board, distinguished themselves by their scholarship during the year.

COURSE HONORS

The bachelor's degree may be awarded *cum laude, magna cum laude* and *summa cum laude* to students whose records, in the judgment of the College Board, warrant this distinction.

DEPARTMENTAL HONORS

A student may elect a program leading to a bachelor's degree with honors in a particular subject at the beginning of the junior year and, in some cases, at the beginning of the senior year. Under this plan, the department appoints an honors adviser who assists the student in planning a unified program of courses for the junior and/or senior years. The program may include a maximum of twenty-four semester hours in which the student works with a large measure of independence under the supervision of the adviser. In the senior year, the student must satisfactorily pass a comprehensive examination given by the department.

Students may apply in writing to their major department for permission to take honors work, not later than May 1 in the sophomore year or, in some departments, in the junior year. Department approval is necessary for admission to such work. In exceptional cases and in certain departments, application may be made and admission approved by the department concerned as late as the first two weeks of the senior year but only with consent of the College Board.

Admission to an honors program does not relieve the student from any of the standing regulations. A student's candidacy for honors will be terminated at the end of any semester in which he has not maintained a standard satisfactory to the department in which he is doing honors work. If candidacy is terminated for any reason, the amount of credit to be allowed for honors courses will be determined by the College Board in consultation with the major department.

The department may recommend the student's graduation with honors, high honors or highest honors, the recommendation

to occur at the conclusion of the honors program. Only students meeting the standards of the College Board for the degree *cum laude* may receive departmental recommendation for high or highest honors.

PHI BETA KAPPA

The Society of Phi Beta Kappa, founded at the College of William and Mary in 1776, is dedicated to the recognition and encouragement of outstanding scholarly achievement in liberal studies. The Clark chapter, Lambda of Massachusetts, was established in 1953. Each year, a limited number of juniors and seniors are elected to membership on the basis of distinction in scholarship in programs which have been definitely liberal in character.

OTHER HONORARY SOCIETIES

Delta Phi Alpha: National Honor Society in German.
Gamma Theta Upsilon: National Honor Society in Geography.
Phi Sigma Tau: National Honor Society in Philosophy.
Psi Chi: National Honor Society in Psychology.
Sigma Pi Sigma: National Honor Society in Physics.

PRIZES AND AWARDS

Homer Payson Little Award in Geology: Provided by a group of interested alumni, the award is presented each Spring to that student who has achieved the highest record in geology classes during the year. The award is named in honor of Dr. Little, a professor of geology at Clark from 1922 until 1954 and also Dean of Clark College.

Prentiss Cheney Hoyt Poetry Prize: A prize of $25 is awarded annually by the English Department for the best poem by an undergraduate. The prize money is received from a fund established by alumni as a memorial to Dr. Hoyt, a professor of English at Clark from 1909 to 1920.

Loring Holmes and Ruth Dodd Drama Contest: A prize of $50 is awarded by the English Department to the student writing the best one-act play. Dr. Dodd was professor of English at Clark from 1910 to 1949 and was chairman of that department.

Physics Achievement Award: Each year, the student in Physics 11 who, in the opinion of the instructor, shows the best performance and improvement in the course work is given a copy of the *Handbook of Chemistry and Physics,* made available by the Chemical Rubber Publishing Company.

Chemistry Achievement Award: A copy of the *Handbook of Chemistry and Physics* is awarded each year to the student who ranks at the top of the class in Chemistry 11.

American Institute of Chemists Award: A medal is awarded by the Chemistry Department each year to a senior chemistry major who demonstrates a high potential for the advancement of chemistry.

Ahepa Greek Prize: A prize of $25 is awarded each year to the best student in Elementary Greek. The prize is made available by the Worcester chapter, Order of Ahepa.

Tuition and Other Charges

GENERAL INFORMATION

Undergraduate tuition, fees and other charges for 1966-67 are listed below. Certain special fees may be required of students in certain departments. Charges for the Evening College and the Summer School can be found in their respective catalogs. Tuition, fees and other charges for graduate students are listed under the catalog section on The Graduate School.

Tuition, board and dormitory charges and certain fees are due and payable prior to the beginning of each semester. These dates for 1966-67 are *September 12* for the first semester and *February 6* for the second semester. No one is permitted to register for any semester until all financial obligations have been satisfactorily arranged with the University. Veterans relying on government aid should have sufficient resources at the time of registration to meet the initial payments required by the University. A penalty fee is levied for late registration and late payment of charges.

TUITION

Tuition for each semester is based on a normal program of from 12 to 17 semester hours of credit inclusive. Students who enroll for more or less than the normal program are charged the full tuition plus $70.00 per semester hour for all semester hours above 17 or minus $70.00 per semester hour for all semester hours under 12.

Special students who register for less than 12 semester hours are charged at the semester hour rate of $70.00.

REFUND

A student who withdraws during the first week of any semester is allowed a refund of 80 per cent on tuition; during the second week, 60 per cent; during the third week, 40 per cent; during the fourth week, 20 per cent; after the fourth week there is no refund. No refund on fees and other charges, including board, is allowed a student who withdraws from the University.

When a student has left the University on the advice of a doctor within the first four weeks of a semester, and a final decision is made later that the student must withdraw from the University, tuition refund will be made retroactive to the date of the doctor's advisement, based on the schedule listed above.

BOARD All undergraduates, with the exception of those living with their parents, legal guardian, spouse or an adult member of the immediate family, are required to take their meals at the University's dining halls.

CONTINGENCY DEPOSIT All undergraduates are required to pay a $25.00 deposit to cover minor charges, such as property damage and identification cards, which may be incurred during the academic year. They will be billed each year for whatever charges are incurred; the balance is refundable upon completion of their studies.

DORMITORY RESIDENCE AND DEPOSIT All undergraduates, with the exception of those living with their parents, legal guardian, spouse or adult member of the immediate family ordinarily must live in University operated dormitory facilities. In the event that the number of students required to live in the dormitories exceeds the number of spaces available, some students will be allowed to live off-campus upon request. The specific students allowed to do so are determined on the basis of age, class status and financial need. Parental permission is required in the case of women students. Students allowed to live off-campus are still responsible for board charges.

The dormitory deposit of $50.00 is required each spring of upperclassmen to reserve a place in a dormitory. It will be credited toward the dormitory charges. The deposit is forfeited if the student does not enroll for the specified semester.

STUDENT ACTIVITY FEE This fee of $15.00 per semester is required of all undergraduates, including part-time students, but not special students.

INSURANCE All students are expected to subscribe to the student insurance plan which gives year-round coverage for health and accidents, unless they are similarly protected by other insurance.

APPLICATION FEE This fee of $10.00 must accompany the application for admission to the Colleges. It is not refundable.

ADMISSION DEPOSIT This fee of $50.00 is required of undergraduate students when they accept the University's formal offer of admissions. It will be credited toward charges for the first semester. The deposit is forfeited if the student does not enroll for the specified semester.

KEY DEPOSIT Fees for keys may be required of the student by certain departments for entrance to buildings, laboratories, personal lockers or mail boxes.

SUMMARY OF TUITION AND OTHER CHARGES

TUITION	Full Program (12 to 17 semester hours)	$850.00 per semester
BOARD		$300.00 per semester
DORMITORY CHARGES	Room rent (single)	$225.00 to $287.00 per semester
	Room rent (double)	$175.00 to $237.50 per semester
ACTIVITIES FEE		$ 15.00 per semester
LABORATORY FEES	Physics, Biology, Geology, Psychology, Languages and Chemistry 11	$ 15.00 per semester
	All other Chemistry courses	$ 20.00
OTHER FEES	Application (undergraduate)	$ 10.00
	Matriculation	$ 5.00
	Induction	$ 10.00
	Diploma (Seniors)	$ 5.00
	Insurance	$ 25.00
	Late registration	$ 5.00
	Late payment of charges	$ 5.00
	Transcripts (no charge for first one)	$ 2.00
DEPOSITS	Admissions	$ 50.00
	Dormitory	$ 50.00
	Contingency (see page 55)	$ 25.00

Student Services

DINING HALLS The University Dining Halls in the Little Student Commons and in Jefferson Hall are operated for the convenience of the students and staff of the University. Service is cafeteria style. Undergraduates who do not live with their parents, legal guardian, spouse or an adult member of the immediate family are responsible for the payment of normal board charges, and are assigned at the beginning of the year to a specific dining facility according to place of campus residence. Other members of the University are welcome to take their meals at University Dining Halls on a semester basis or for single meals. The snack bar in Jefferson Hall is open to all members of the Clark Community.

DORMITORIES With the exceptions noted on page 55, all resident undergraduates must live in University operated dormitory facilities. Rooms are reserved on receipt of the dormitory deposit fee which is later applied to room rental charges.

The University reserves the right, after consultation with dormitory residents, to use dormitory rooms and facilities for University sponsored conferences held during vacation periods.

INFIRMARY

Facilities are provided at the University Infirmary for the treatment of emergencies and for minor medical services to all students while they are on campus. In addition, there is provision for the temporary in-patient care at the University infirmary of resident students in cases of more serious illness. A nurse and a University physician are in attendance. The infirmary is open throughout the academic year.

HEALTH AND ACCIDENT INSURANCE

Subscription to a low-cost health and accident insurance plan covering ordinary medical expenses not covered by the University is required of all students unless they are similarly protected by other insurance.

PSYCHOLOGICAL CLINIC

A psychological clinic is available on campus to provide testing and counseling services to students who wish help in academic or personal adjustment. If desired, other more appropriate University or community resources can be recommended to the student. The staff includes the clinic director, other clinical psychologists in the Department of Psychology and consultants in psychiatry, psychiatric social work and clinical psychology. The Clinic is directed by Dr. Roger Bibace, associate professor of clinical psychology.

GUIDANCE AND PLACEMENT OFFICE

Individual counseling on problems of vocational planning and adjustment to college life is also available through the Office of Guidance and Placement. The service supplements the advisory services of individual teachers and deans. The office assists the student in job exploration, informing him of available positions and arranging interviews with potential employers. Students are urged to establish a permanent reference file. Part-time employment opportunities are also listed with the office for students who wish to work during their college career to help meet college expenses. The office is directed by Dr. James M. Coffee, associate professor of education.

Student Life

STUDENT LIFE The Clark community is a liberal environment in which students are encouraged to take primary responsibility for the social as well as the intellectual aspects of their lives.

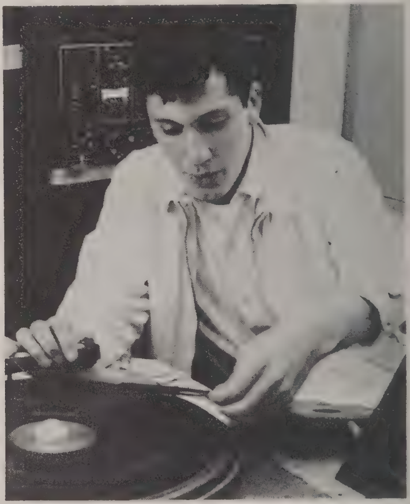
STUDENT ACTIVITIES FEE Non-athletic activities are partially supported by the student activities fee which, in addition, admits students to all athletic contests on campus, provides them with the college newspaper and yearbook and admits them to certain lectures, plays and concerts.

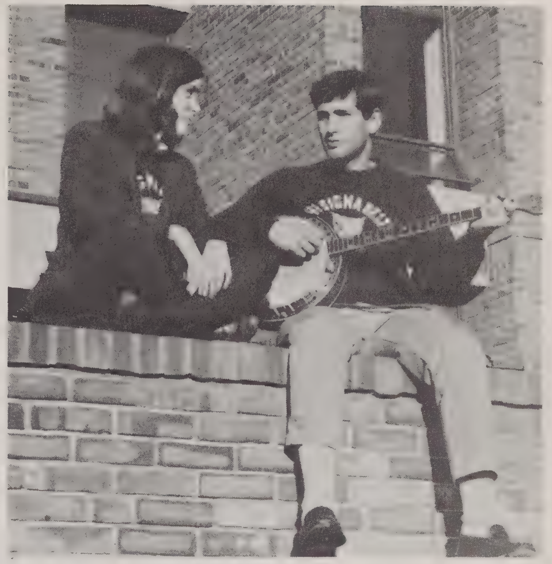
LECTURES AND CONCERTS Throughout the year, noted scholars, musicians and artists and public officials are brought to the campus for lectures and concerts. Among those heard during 1966-67 were The Boston Symphony Orchestra Chamber Players, W. D. Snodgrass, The Kingsmen, Dr. Max Lerner, Odetta, The Paul Taylor Dance Company, Dave Brubeck Quartet, Harold Clurman, Senator Edward M. Kennedy, Barry Ulanov, Mayor Richard C. Lee of New Haven, Senator Wayne Morse, Richard Dyer-Bennett, Henry Margenau, Kirtley Mather, and Senator Leverett Saltonstall.

STUDENT COUNCIL The Student Council, elected by the entire student body each spring, is recognized as the official organization representing the student body in its participation in the affairs of the College.

MUSIC Musical organizations open to all students include the University Chorale, Concert Choir, Instrumental Ensemble, Madrigal Singers, and the University Orchestra. The Opera Group has produced Gilbert and Sullivan's *Trial By Jury,* Handel's *Dido and Aeneas,* and Offenbach's *La Périchole.*

DRAMATICS The Clark University Players Society each year presents dramatic offerings with student casts. It has a distinguished record of productions which, in recent years, has included *The Cherry Orchard, The Crucible, Cock-a-Doodle Dandy, The Waltz of the*





Toreadors, and *The Physicists.* An experimental theater group also performs in productions such as Beckett's *Endgame* and Pinter's *The Collection.*

COMMUNITY CULTURAL OPPORTUNITIES

The City of Worcester also offers to Clark students many other cultural opportunities. The Music Festival in October featuring the Detroit Symphony, and the Community Concert Series are examples. The Worcester Art Museum, world famous for its outstanding collections and art school, sponsors numerous lectures, movies, and concerts.

SPEECH AND DEBATE

The Debate Council frequently directs a High School Debate Clinic and enters numerous intercollegiate debate contests.

RELIGIOUS ORGANIZATIONS

Religious organizations include the Christian Fellowship Organization, Clark Christian Association, The Newman Club, Hillel Counselorship, and the Clark Student Humanist Association.

PUBLICATIONS Students may join the staffs of *Scarlet,* weekly student newspaper; *Helicon,* student literary magazine; *Fotch,* student humor magazine; *Pasticcio,* student yearbook; and other journals of student opinion.

RADIO STATION A campus radio station, WCUW, organized in 1964, broadcasts approximately 70 hours per week.

SOCIAL ACTION ACTIVITIES Many Clark students are active in issues of war and peace, civil rights and poverty through participation in community action, national programs and campus lectures and discussions.

OTHER ORGANIZATIONS Other campus organizations are affiliated with areas of department instruction, such as the Physics, Psychology and German clubs; hobbies or interests, such as the Chess Club, Pre-Law Club, Photography Club or Society for the Advancement of Management; and other activities, such as the Outing Club, Sailing Club and the Fencing Society.

SOCIAL ACTIVITIES Dances and other social activities, such as the Senior Prom, Junior-Freshmen Prom, and the Winter Carnival, are regularly scheduled by the student Social Affairs Board.

FRATERNITIES Four fraternities are associated with the University. They are Lambda Chi Alpha, Tau Epsilon Phi, Kappa Phi and Phi Sigma Delta. All own fraternity houses nearby the campus.

SORORITIES There are no sororities.

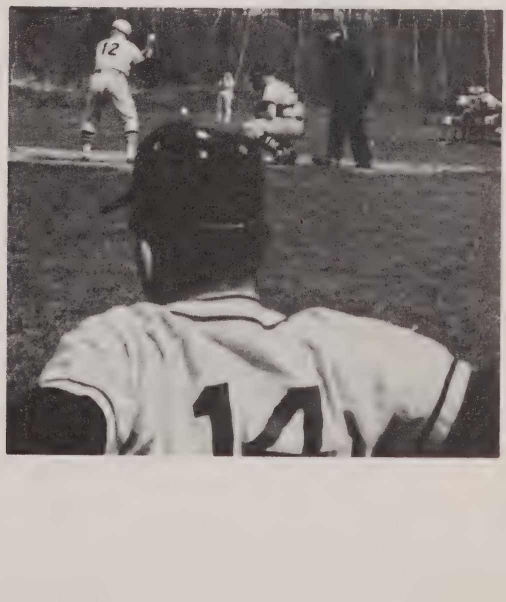
GRYPHON AND PLEIADES Each year, a group of men and women are chosen from the junior class on the basis of outstanding characteristics to join Gryphon—senior men's honorary society, or Pleiades—senior women's honorary society. The societies play an important role in campus life and in maintaining the traditions of the College.

SCARLET KEY In addition to acting as guides for campus visitors, *Scarlet Key,* a sophomore-junior service organization, undertakes other activities beneficial to the University.

Physical Education and Athletics

PHYSICAL EDUCATION

Two hours per week of physical education is required of freshmen and sophomores. Students are excused from this requirement only on the recommendation of the medical director. Programs are designed to stimulate and encourage students to wider participation in physical activities to promote health and mental efficiency and lead to continuing participation throughout life.



MEN'S PROGRAMS

Men may choose activities from the following areas:

1. *Intercollegiate Athletics*

For men with a reasonably high level of skill and a well defined and strong interest in athletic competition, intercollegiate schedules at the Varsity and Freshmen levels are arranged in baseball, basketball, golf, ice hockey, eight-oared shells, soccer, tennis, and cross-country. Competent coaches have immediate supervision over the teams.

2. *Intramural Athletics*

The opportunity to gain some of the benefits of participation in competitive athletics is offered to all students through organized intramural competition in touch football, basketball, volleyball, tennis, handball, table tennis, paddle rackets, and softball.

3. *Physical Education Classes*

Instruction and practice is given in a wide variety of activities including work with a number of team games, individual and dual sports, apparatus, and calisthenics.

WOMEN'S PROGRAMS

The physical education program for women requires, during each of the two years, attendance at classes in body mechanics and one of the rhythmic activities. Participation in one group sport and in one individual sport is also required. Folk dancing, square dancing and modern dancing are offered.

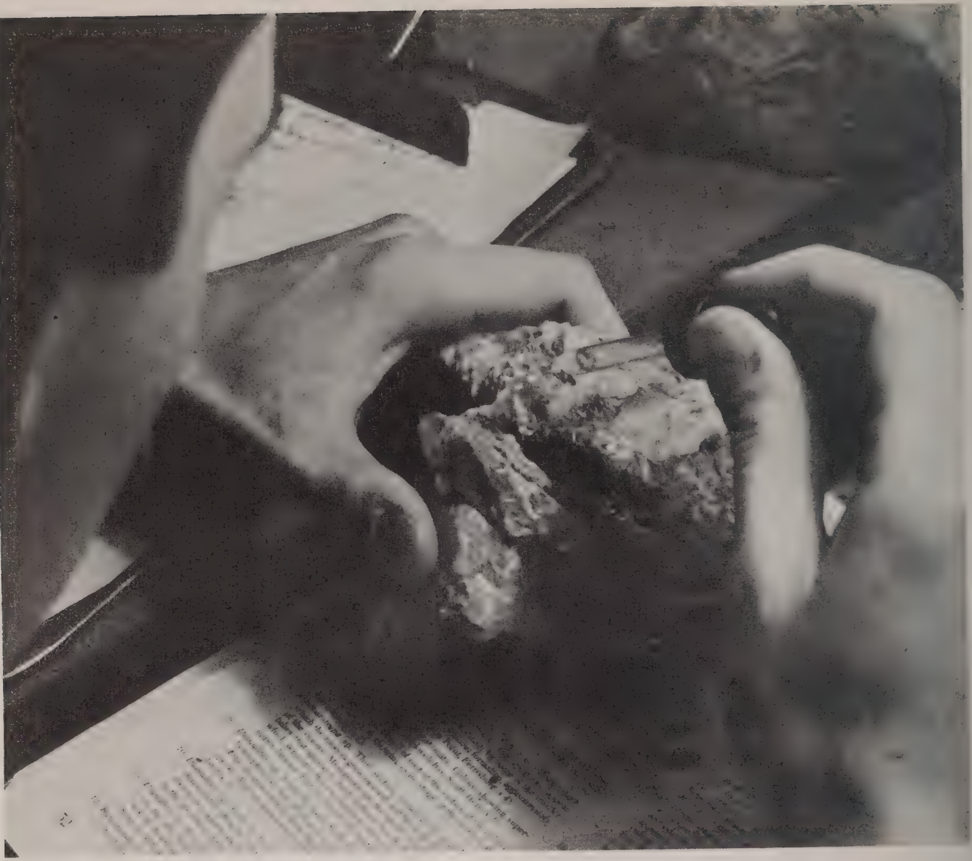
Students in the Women's College can participate in archery, badminton, basketball, crew, fencing, field hockey, golf, horseback riding, tennis, softball and volleyball. Tournaments are held in the spring and fall and trophies are awarded to winners. Women use their own gymnasium for practice but have the use of the Alumni Gymnasium for games with outside organizations.

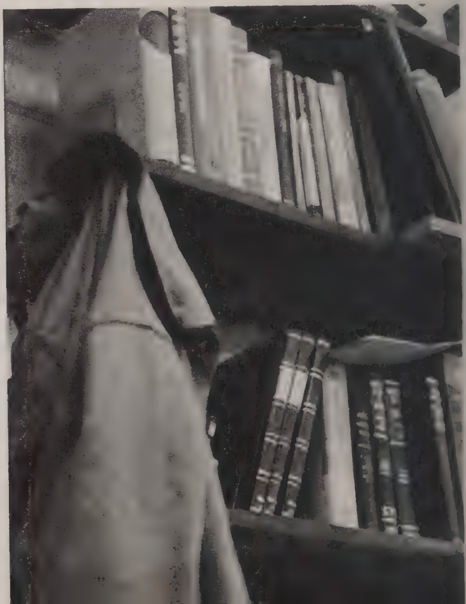
ELIGIBILITY

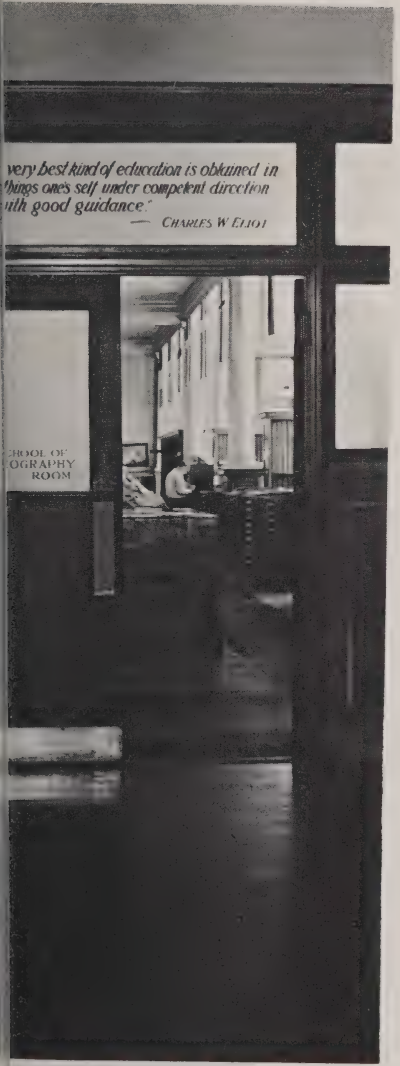
Students carrying less than a full program of studies are ineligible to participate in organized extracurricular competitive athletics unless the reduced program permits graduation at the end of the year in which the program is carried. A student transferring with advanced standing from another four-year college is ineligible for one calendar year from the date of registration at Clark to participate in any varsity sport in which he participated at the previous institution. Special students are not normally entitled to participate in competitive intercollegiate sports.

ASSOCIATION MEMBERSHIPS

Clark University is a member of the National Collegiate Athletic Association, the New England College Athletic Conference and numerous sports associations.






very best kind of education is obtained in
things one's self under competent direction
ith good guidance."
— CHARLES W ELIOT
CHOOL OF
OGRAPHY
ROOM

THE GRADUATE SCHOOL

The Graduate School

GENERAL INFORMATION

Clark University was initially established as one of America's first institutions dedicated exclusively to graduate study and research. Its faculty and graduates have endowed the University with an impressive record of accomplishments through the years. Under the administration of the Graduate Board, Clark offers programs leading to master's and doctor's degrees to qualified holders of a bachelor's degree or its equivalent of attainment.

Master of Arts degrees are offered in the fields of biology, biomedical engineering (in cooperation with Worcester Polytechnic Institute), chemistry, economics, English, education, geography, government, history, international relations, mathematics, physics, psychology and sociology. A Master of Business Administration degree is offered through the Evening College of the University, and is described in the catalog section on the "Evening College."

Doctor of Philosophy degrees are offered in biology, chemistry, chemical-physics, economics, geography, history, international relations, mathematics, physics and psychology. A Doctor of Education degree is offered by the Department of Education.

Post-doctoral training is conducted in psychology and the sciences. Inquiries should be addressed to the chairman of the department concerned.

Departments which do not at present accept candidates for graduate degrees may offer courses which are suitable for inclusion in a program of graduate study.

Scholarships and fellowships afford financial aid to candidates for the graduate degrees and are listed at the end of this section. Additional information concerning departments and their offerings will be found in the section entitled "Departments and Courses."

INQUIRIES

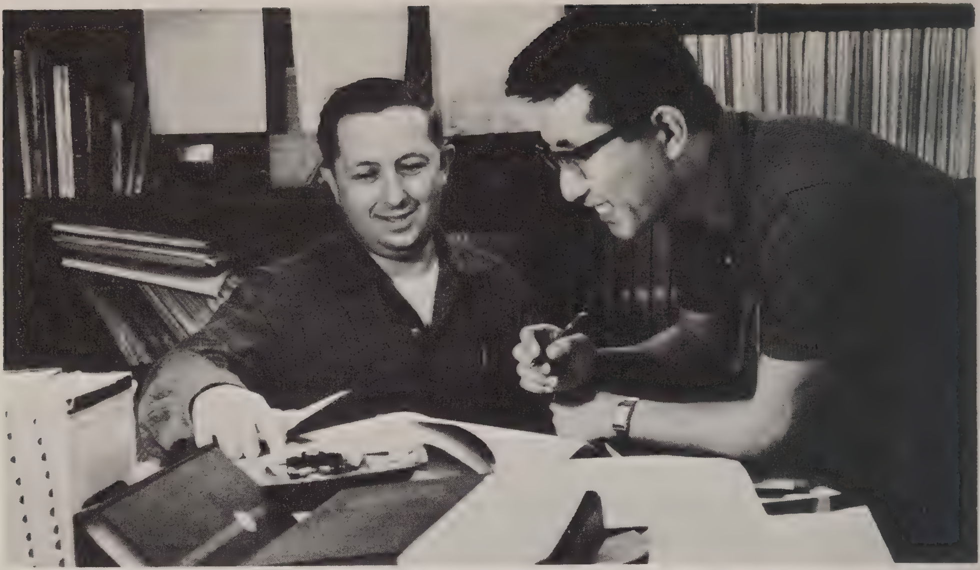
General inquiries and correspondence concerning the Graduate School should be directed to the Dean of the Graduate School. Inquiries concerning specific programs of graduate work and applications for admission should be addressed to the chairman of the department concerned.

ADMISSION TO THE GRADUATE SCHOOL

Admission to the Graduate School may be granted only by the Graduate Board on the recommendation of a department of the University. Admission to the school does not imply admission to candidacy for a degree.

Application: A prospective applicant should communicate with the department in which he expects to do his major work. If he is encouraged by the department to make application, he will be provided with application blanks. These should be returned to the chairman of the department. In addition, the applicant should arrange to have an official transcript of his undergraduate, and any subsequent work, and at least two letters of recommendation from persons who are competent to judge his qualifications for graduate work sent directly to the chairman of the department concerned.

Departments may request the submission of additional material, and some require a record of attainment in the Graduate Record Examination given by the Educational Testing Service, Princeton, New Jersey. All applicants are urged to take, and to submit the results of the Graduate Record Examination verbal, quantitative and advanced tests.



Applications for both admission and for financial aid should be completed not later than February 20 if the applicant intends to begin his studies in the following September. Applications may be submitted, however, throughout the year and are periodically considered by the Graduate Board.

Admission: Admission to the Graduate School is granted for entry only at a specified time and lapses if the student fails to enter at that time. Admission as special or part-time graduate students may be granted to qualified applicants who do not wish to work for a degree or who cannot devote full time to study.

If a student, when admitted, was a candidate for a degree elsewhere, he must arrange upon receipt of the degree to have a supplementary transcript, including a notation of the degree conferred, sent directly to the Dean of the Graduate School.

MASTER OF ARTS

Residence: An academic year of full-time study in residence, normally 30 semester hours, or its strict equivalent in summer sessions and part-time study, is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty. In special cases, a student who has completed at least one semester in residence, may petition the Graduate Board in advance for permission to take and transfer credit for a specified course (up to a maximum of six semester hours) at another institution.

Foreign Language: A reading knowledge of a foreign language, usually French or German, may be required of candidates for the degree of master of arts at the discretion of the major department.

Candidacy: Application for admission to candidacy for a master's degree should be filed with the Dean of the Graduate School not later than the first week of the last full semester which the student expects to spend in residence as a candidate for this degree.

Applications will be considered by the Graduate Board when the student has completed one semester of full-time graduate work or its equivalent in residence at the University, obtained the written endorsement of his major department and paid the diploma fee and publication fee.

Candidacy for the degree of Master of Arts is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board. If the candidacy expires without the degree having been awarded, the diploma and publication fees, less any expenses incurred, are returned.

Course and Examination Requirements: Each student must meet a minimum course requirement of 30 semester hours, and his program must be approved by the chairman of the department. One of his courses, normally three to six semester hours, may be a research course devoted to the preparation of his thesis.

Each candidate must make a satisfactory record in such written examinations as may be required by the major department and in a final oral examination by a committee of three or more, two of whom must be members of the Graduate Board.

Thesis: The thesis is written on a topic in the field of the student's special interest under the supervision of a member of his major department. The ribbon copy of the thesis, a précis approved by the supervising instructor, and an academic history must be deposited in the Registrar's office not later than three weeks before the date of the commencement at which the degree is to be conferred. A second copy of the thesis with a copy of the précis must be delivered to the major department. The précis may not exceed 75 words in length. The title page, précis and academic history forms are obtainable from the Graduate School Office. The ribbon copy of the thesis must be typed on prescribed paper, marginally ruled in black and obtainable at the University Bookstore. For directions concerning the preparation of the deposit copy, see "The Master's Thesis" issued by the Graduate School Office.

The thesis is deposited by the Registrar in the University Library. The précis is printed by the University in an annual publication, *Dissertations and Theses.*

Alternative Program: A candidate for the degree of Master of Arts may be recommended for the degree without a thesis when he has passed the preliminary doctoral examination.

MASTER OF ARTS IN EDUCATION

The residency, candidacy, course and examination requirements are basically the same as those listed for the degree of Master of Arts.

Thesis: Students may choose one of three options, subject to the approval of the Department of Education. They may choose to (1) prepare a thesis or special report, as required for the M.A. degree; or (2) elect two additional semester courses (six semester hours) in subject-matter fields; or (3) elect a double seminar, six semester hours, in which papers are prepared and presented to fellow students and staff.

Further information concerning the degree of Master of Arts in Education may be found in the catalog section, "Departments and Courses," listed under the Department of Education.

MASTER OF BUSINESS ADMINISTRATION

This degree is offered through a program of the Evening College of the University. For further information, see the catalog section on the "Evening College."

DOCTOR OF EDUCATION

The program leading to the degree of Doctor of Education emphasizes educational psychology, guidance and counseling. The requirements for this degree closely parallel those for the degree of Doctor of Philosophy (see below). Applicants for admission to the program are required to submit results of the Graduate Record Examination. Foreign students may be excused from this admission requirement.

DOCTOR OF PHILOSOPHY

Only such candidates as give evidence of general proficiency, power of investigation and high attainments in the special fields in which their major subjects lie will be encouraged to proceed to the degree of Doctor of Philosophy.

Residence: The minimum requirement is one year of full-time study (not less than 24 semester hours), or its equivalent in part-time work, in residence which is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty. If the degree of Master of Arts has been earned at Clark, this requirement is an addition to the residence requirement for that degree.

Foreign Language: A prospective candidate must pass an examination in the reading of a modern foreign language to be chosen at the discretion of his department from the following: French, German, Russian, Spanish. For the first three, the Educational Testing Service Foreign Language Tests are used; for Spanish the examination is conducted by a committee representing the major and the language departments. The language examination should be taken as soon as possible, but must be passed at the latest before filing application for admission to candidacy.

Each graduate department may make such additional language or related requirements as the student's field of research may demand, and must report such requirements in each case to the Dean of the Graduate School.

Preliminary Examination: Upon completion of preparation in his fields of study a prospective candidate takes a preliminary examination set by his major department. This examination may be written or oral, or a combination of both. The chairman of the department may invite non-members of the department from within or without the University to participate in the examination.

Candidacy: Applications for admission to candidacy must be filed with the Dean of the Graduate School no later than November 1st by students who expect to receive the degree at the following commencement.

An application for admission to candidacy will be considered by the Graduate Board when the applicant has (1) completed two full academic years of graduate work, or its equivalent in part-time work, including one year at Clark University; (2) passed the required examination in a foreign language, (3) passed a preliminary examination in his chosen field of study; (4) obtained the written endorsement of his major department; and (5) paid the diploma fee and publication fee.

Candidacy for the degree of Doctor of Philosophy is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board. If candidacy expires without the degree having been awarded, the diploma fee and publication fee, less any expenses incurred, are returned.

Dissertation: A dissertation which is expected to make an original contribution to some special field of knowledge is required of each candidate. The dissertation, approved by the chief instructor or dissertation committee, is laid before the examining committee at the final oral examination.

An abstract of the dissertation, not exceeding 600 words in length, and a précis, not exceeding 75 words, both approved by the instructor or committee under whom they were written, are also required.

Not later than four weeks before the commencement at which the degree is to be conferred, the ribbon copy of the dissertation, together with two official title pages, an academic history, the ribbon copy of the abstract and of the précis, each in a form prescribed, must be delivered to the Registrar. At the same time, a second copy of the dissertation and of the abstract may be required by the major department. The title page, précis and academic history forms are obtainable from the Graduate School Office. The ribbon copy of the dissertation must be typed on prescribed paper, marginally ruled in black, obtainable at the University Bookstore. For directions concerning the preparation of the deposit copy, see, "The Doctoral Dissertation" and "Suggestions for the Preparation of Doctoral Dissertations for Microfilming" issued by the Graduate School Office.

The Registrar deposits the dissertation and the abstract in the University Library where they remain permanently. A microfilm copy of each dissertation is made by University Microfilms, Inc., of Ann Arbor, Mich., and is available for duplication by them on request. The abstract is printed in *Dissertation Abstracts;* the précis is printed by the University in an annual publication, *Dissertations and Theses.*

Final Examination: The final examination is oral and lasts for at least two hours. Additional written examinations may be given if the major department so directs. The candidate is expected to defend his dissertation and, at the discretion of the examining committee, may be questioned on the entire special

field of his study. The oral examination is conducted by a committee of at least four members, composed of the chairman of the department, at least one other member of the Graduate Board, and such members of the department and non-members from within or without the University as the chairman may appoint. The chairman notifies the Dean of the Graduate School, at least one week in advance, of the time and place of the examination and the composition of the committee. The Dean is authorized to invite any person from within or without the University to be present and to assist in the examination.

POST-DOCTORAL STUDY

Post-doctoral students are classified in three categories: *Honorary Fellows* who are visitors for varying lengths of time, always more than a few days, who wish to observe activities of a department, to study, or to carry on research, but without formal teaching duties or support by the University; *Research Associates* who work full-time with designated members of the University staff on research projects, normally supported by grants, without formal teaching duties but with some responsibility for directing laboratory assistants; and *Trainees* who enroll in a formally offered post-doctoral training program.

The Honorary Fellows and Research Associates enjoy faculty status, although the extent to which faculty privileges may be granted may be restricted by availability of space and other resources. For trainees, currently the Steroid Biochemistry Training Program is conducted by the Department of Biology in cooperation with the Worcester Foundation for Experimental Biology at the Foundation. Post-doctoral training is also available in the clinical and developmental analysis of behavior within the Heinz Werner Institute of Developmental Psychology (see Department of Psychology).

GRADUATE SCHOLARSHIPS, FELLOWSHIPS AND ASSISTANTSHIPS

Graduate fellowships and scholarships are provided for well-qualified, full-time graduate students by the University from endowed funds and from other sources. Financial aid to graduate students is available also in the form of grants from a number of special funds, and in some departments, from sponsored research grants. A limited amount of part-time employment is available in the various offices and departments of the University. Frequently, as in the case of departmental assistants, this employment yields useful experience.

Application: Application for a scholarship or fellowship to begin in September should be made before February 20 to the chairman of the department in which the applicant expects to do his major work. Late applications are acted upon periodically. All applications, after endorsement by the department, go to the Graduate Board for final action.

Research Fellowships: These fellowships may be awarded to graduate students who have fulfilled their residence requirements and who are pursuing a full-time doctoral program.

Teaching Assistant Scholarships or Fellowships: These may be awarded to teaching assistants who are engaged in full-time activity on campus, of which approximately half-time is devoted to teaching duties and approximately half-time is devoted to graduate study.

Teaching Assistantships: In several departments, teaching assistantships, involving less than half-time, are available with stipends which vary according to the amount of service agreed upon.

Note that the departments of Biology, Chemistry, Geography, History, Mathematics, Psychology, and the Romance Language program in Education require teaching experience for graduate degrees. See the departmental announcements in the catalog section on "Departments and Courses."

Assistantships: In several departments, assistantships are available. They involve a variety of services with stipends to correspond, and usually provide the student with experience which will be useful in his later professional work.

Graduate Fellowship and Scholarship Funds: Stipends for graduate fellowships and scholarships are provided by:

THE GEORGE FRISBIE HOAR FUND, the gift of Andrew Carnegie in honor of the second president of the University's Board of Trustees.

THE AUSTIN S. GARVER FUND, a bequest from Austin S. Garver, member of the Board of Trustees from 1908 to 1918.

THE CHARLES H. THURBER FUND, provided by Charles H. Thurber, member of the Board of Trustees from 1913 to 1938 and president of the board from 1919 to 1937.

THE GEORGE S. BARTON FUND, a bequest from the Honorable George S. Barton of Worcester, to be used for the benefit of native-born citizens of Worcester.

THE ALUMNI ASSOCIATION FUND, provided by alumni who hold the degree of Doctor of Philosophy to benefit students studying for that degree.

THE JOSEPH F. DONNELLY MEMORIAL FUND, a bequest from Lucretia F. Donnelly to help men who are enrolled in a course leading to the degree of Doctor of Philosophy.

GRADUATE SCHOOL SCHOLARSHIP FUND, a bequest from Alexander H. Bullock, a member of the Board of Trustees from 1926 to 1946 and president of the board from 1938 to 1946.

GRADUATE AID

THE JOHN WHITE FIELD FUND, established by Mrs. Eliza W. Field to provide for the minor needs of a scholar or fellow.

THE ELIZA D. DODGE FUND, to be granted to graduate students of limited means who are engaged in research work.

THE MYERS FUND, a gift of George E. Myers, Ph.D., '06, to assist graduate students to do research in education and psychology.

GRADUATE LOANS

Loans, bearing interest at three percent per year, are available for graduate students from these funds:

THE MARY S. ROGERS SCHOLARSHIP AND LOAN FUND, established in 1926 for the benefit of students in the graduate school.

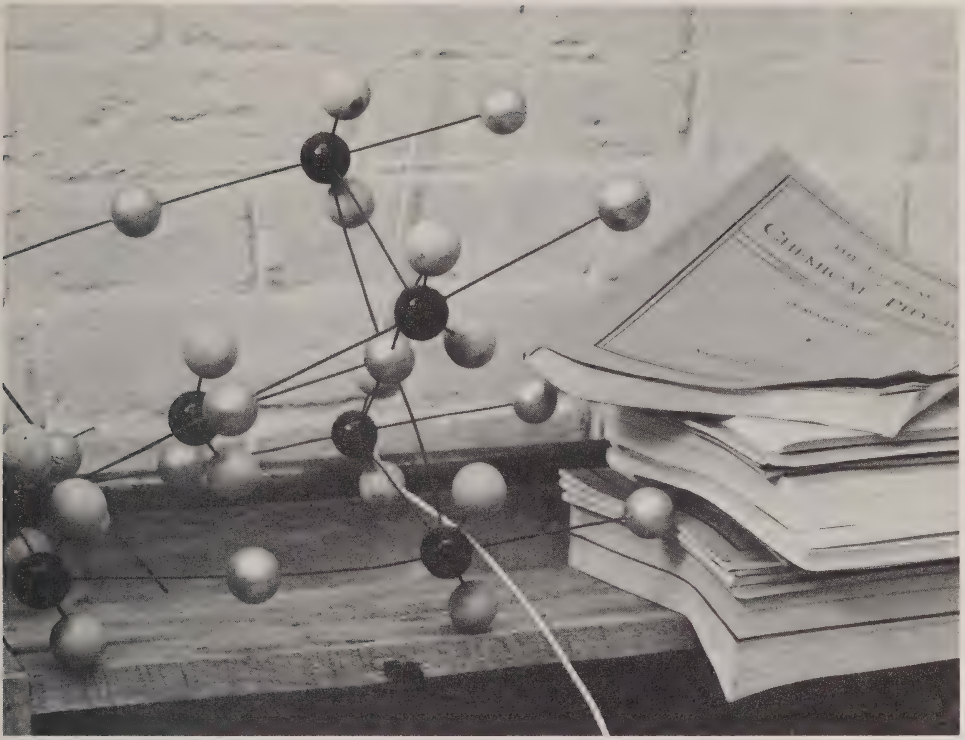
THE SARAH M. THURBER LOAN FUND, established by the late Dr. Charles H. Thurber, former president of the University Board of Trustees, as a memorial to his mother.

For these and other sources that may become available, applications should be made at the College Financial Aid Office.

DEPARTMENTAL FUNDS

THE WALLACE W. ATWOOD RESEARCH FUND. The income of this fund may be used at the discretion of the staff in the Graduate School of Geography for the promotion of field studies in geography by any member of the staff, or any one of the alumni holding a graduate degree from the Graduate School of Geography, or for the publication of results of such research work.

THE CHESTER BLAND FUND. The income of this fund is preferably used to provide aid to a promising student, either in residence



or engaged in research elsewhere under the direction of the Department of History, Government and International Relations. It may also be used to defray the expense of visiting lecturers or of departmental research.

THE WALLACE W. GREENWOOD FUND. The income only is to be divided between the Departments of Physics and Chemistry and to be used for any purpose within the scope of these two departments.

THE MORTON L. "SONNY" LAVINE FOUNDATION is a memorial to Lieutenant Lavine of the United States Army, World War II. The income is to be used for the promotion of research in the Department of History, Government and International Relations.

THE LIBBEY FUND, bequeathed to the University by Mary E. Libbey, is to establish a fellowship in physical geography and to aid the Department in that field.

OTHER FUNDS

In addition to the Clark departmental funds listed above, several departments participate in national fellowship or traineeship programs; including:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION traineeships in the sciences.

NATIONAL DEFENSE EDUCATION ACT, TITLE IV fellowships in chemistry, geography, history and psychology.

NATIONAL SCIENCE FOUNDATION traineeships in biology, chemistry, geography, mathematics and psychology.

PUBLIC HEALTH SERVICE fellowships and traineeships in biology, chemistry and psychology.

UNITED STATES STEEL fellowship in economics.

For further information consult the chairman of departments or the Dean of the Graduate School.

HOUSING AND BOARD

An ample supply of off-campus rooms for both men and women is available in the immediate area of the University. In addition, there is a limited number of rooms for men in the Graduate House and of apartments for couples in University buildings. For information concerning University accommodations, write directly to the Office of Buildings and Grounds, which also keeps a bulletin board of available off-campus rooms and apartments. Students should plan to arrive a few days before registration in order to arrange for housing.

Graduate students are invited to take advantage of board in the University dining halls at the cost of $600 for the academic year (20 meals per week excepting during vacations). They will also find the Snack Bar in Jefferson Hall available for single meals.

INFIRMARY AND INSURANCE

Students paying full tuition are entitled to the use of the University infirmary without supplementary fee; scholars and fellows must pay the infirmary fee of $10. All students may avail themselves of the Accident and Sickness Insurance offered for the calendar year at a cost of $25, plus the infirmary fee (if not covered by fully paid tuition). Brochures explaining the services covered by the insurance policy and application blanks may be procured from the Graduate School Office.

Graduate Tuition and Other Charges

GENERAL INFORMATION

Every student must pay the matriculation fee upon first entering the University. Identification cards are required each year of residence. Tuition is due at the time of registration. A late registration fee is charged if registration is not completed by the end of the second week of the semester. Graduate students do not pay laboratory fees, but departments may make assessments for other purposes. Candidates who are not in residence must pay the non-resident fee until the requirements for the degree are fulfilled; non-payment will automatically terminate candidacy.

SCHEDULE OF TUITION AND OTHER CHARGES

Matriculation Fee	$5.00
Identification Card	$1.00
Late Registration (after second week of the semester)	$5.00

TUITION Full Program (12 to 17 semester hours) $850.00 per semester

If less than a full program, the student will be charged according to the fraction of a program indicated by the Chairman of the department on the registration card.

Special (non-degree) Students	70.00 per semester hour
ETS Foreign Language Tests	7.00
Infirmary (optional for Scholars and Fellows)	10.00
Insurance (optional for all students)	25.00

CANDIDACY FEES

Master of Arts Diploma	5.00
Master of Arts Publication	10.00
Doctor's Diploma	25.00
Doctor's Publication	30.00

NON-RESIDENT CANDIDATE FEES (Payable on November 1 and March 1)

Master's Candidates	12.50 per semester
Doctoral Candidates	25.00 per semester

The fees double upon renewal of candidacy.

(For board and dormitory charges, see "The Undergraduate College"; for the Master of Business Administration tuition and fees, see the "Evening College Catalog.")

HE SUMMER SCHOOL

The Summer School

SUMMER STUDY Intensive instruction in numerous fields of study is offered through two summer programs: a six-week summer session and a three-week intersession program. A variety of courses is offered for undergraduates, graduate students and teachers. A student may register for nine semester hours of credit each summer by attending the Intersession and the Summer Session. Evening courses are also available during the summer to all students to continue their education while engaged in day-time employment. The student is encouraged to attend informal afternoon seminars, conferences and week-end excursions to New England cultural centers.

DEGREES AND CREDIT All courses offered in the Summer Session or Intersession programs are accepted at Clark for credit toward bachelor's degrees unless they are specifically limited in the description of the course. Many courses count toward the degrees of Master of Arts, Master of Arts in Education and Doctor of Philosophy. However, approval for such courses should be obtained in advance from the student's major department.

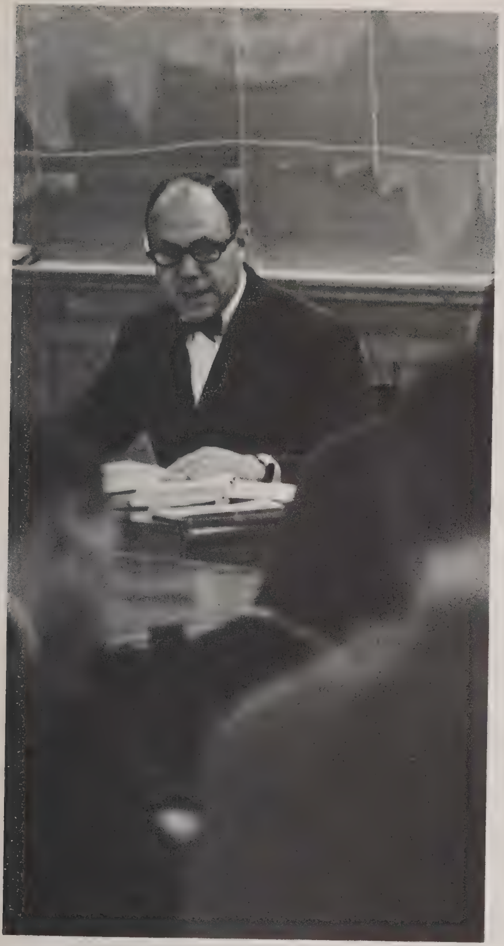
Graduate students formally registered in the Summer School may, with the approval of their major department, enroll in thesis courses under the direction of regular members of the staff.

Each single course offered in the Summer School yields three semester hours of credit. The double courses in languages and occasionally other subjects, which meet for two lecture periods a day for six and one-half weeks, yield six semester hours of credit.

A student may carry in a normal program one course in the Intersession and two courses in the Summer Session. Permission to carry an additional course may be granted but only in exceptional cases and with approval in writing prior to registration.

SUMMER SCHOOL CATALOG

Detailed information concerning the Summer Session and Intersession are contained in a Summer School catalog which may be received upon request from the director of the Summer School.



EVENING COLLEGE

The Evening College

GENERAL INFORMATION

The Evening College, established in 1953 as an institution devoted to adult learning, has three primary functions. With the conviction that education in our modern society must be a lifelong process, it provides university education for adults of all ages who seek further knowledge and personal development through selected studies in the broad areas of the liberal arts. Further, in recognition of the rapidly developing and changing needs of business and the professions, it provides courses designed to help working men and women improve their occupational skills and to prepare for positions of increased responsibility.

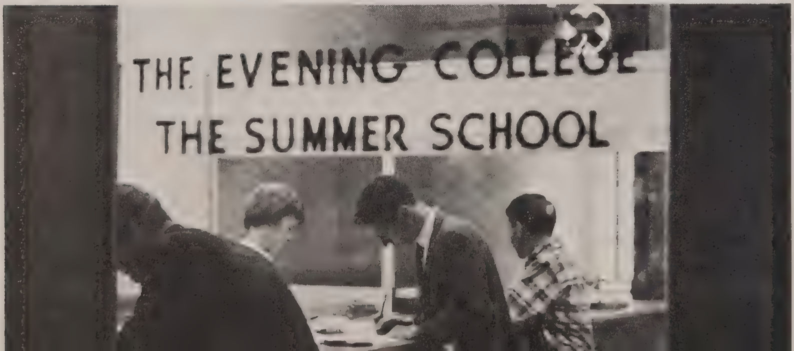
Secondly, the Evening College provides an opportunity for adults to earn the bachelor's degree, exclusively by evening study, through programs planned to meet the unique educational needs of the mature person. Formal programs are available leading to the degree of Bachelor of Science in either general studies or business administration, to the degree of Bachelor of Fine Arts, and to the degree of Master of Business Administration. The Evening College also offers the Diploma in General Studies after completion of a short formal program in liberal education designed specifically for adults.

Finally, as a community service, the Evening College organizes frequent non-credit short courses, institutes and seminars, which are tailored to the specific needs of various civic, professional and business groups.

ADMISSION

Students may be enrolled for either individual courses or formal programs of study.

Individual Courses: Admission to individual courses in the Evening College is open to all interested adults seeking to further their education. High school graduation is not required but



desirable. Continued attendance is contingent upon evidence of ability to profit from the instruction offered. Advanced courses for which prerequisite courses or experience are indicated are open only to persons who meet the stated requirements.

Admission To Formal Programs: Adults applying for a formal program of study in the Evening College will be required to submit records of their previous schooling prior to admission. Except under unusual circumstances applicants must possess a diploma from an accredited high school. Applicants for the Bachelor of Science degree or the Diploma in General Studies who have not attended college previously may arrange to have their high school records forwarded to the Evening College on forms supplied to them on request to the college. Adults who have attended other colleges should request that their transcripts be forwarded directly to the Evening College.

MASTER OF BUSINESS ADMINISTRATION

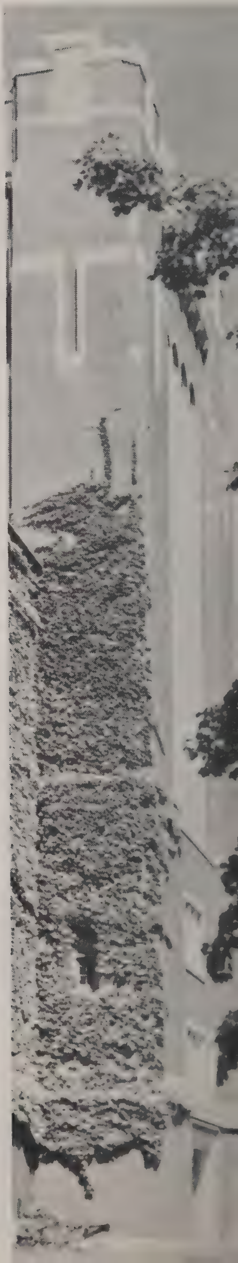
The Evening College offers a graduate program leading to the degree of Master of Business Administration. Established in 1962, the program is designed to provide the best possible education for men and women at the graduate level for careers in business. Through carefully selected substantive materials and an analytical approach to the practice of management, the program is designed to enable college graduates to supplement job experience in preparing for positions of executive responsibility. The course of study emphasizes administrative decision-making rather than details of initial positions in business. Qualified students may take advantage of the program while remaining in their present business activities and continuing to gain experience through evening programs of study. In offering the program, the Evening College seeks to broaden its services to the local community and to provide university education for adults at an additional level of formal study.

The curriculum consists of 30 semester hours of credit. Details of the curriculum, tuition and admissions requirements will be found in the Evening College Catalog.

EVENING COLLEGE CATALOG

Detailed information about the Evening College is contained in a special catalog which may be received on request from the director of the Evening College.

DEPARTMENTS AND COURSES



Departments and Courses

DEPARTMENT FACULTIES The staff of each department is listed by rank and by alphabetical order within rank. Department chairmen are normally listed first. For further information concerning the faculty, see the general faculty listing in the section, "Directories."

DEPARTMENT PROGRAMS Each department offers information concerning its undergraduate offerings and requirements as well as the offerings and requirements concerning graduate study, if a graduate program is offered. For further information concerning a major field of study, students should consult their faculty advisers or major department chairmen.

DEPARTMENT COURSES The course offerings of each department are listed in their numerical sequence. The announced courses are subject to modification and change.

Some departments offer readings or special projects courses which may be entered with the permission of the instructor concerned. No student, however, may register for more than eight semester hours of such courses during a given semester or for more than twenty-four semester hours of such courses during his college career.

COURSE NUMBERING SYSTEM Each course is indicated by number and title. A course number, unmodified by "a" or "b" indicates a year-course, one which continues through two semesters of an academic year. A course number followed by an "a" refers to a half-course usually offered in the first semester. A number followed by a "b" refers to a half-course usually offered in the second semester.

Two-semester courses are divisible unless an explicit statement of indivisibility appears in the course statement. Courses which are indivisible normally require the successful completion of the first semester as a prerequisite to entering the second semester.

COURSE SEQUENCE Courses are arranged, in general, in sequence progressing from elementary to advanced courses.

Courses which are *primarily for undergraduates* are designated by numbers beginning with the numeral *1*.

Courses for *advanced undergraduates and graduate students* are designated by numbers beginning with the numeral *2*.

Courses which are *primarily for graduate students* are designated by numbers beginning with the numeral *3*.

ORDER OF DEPARTMENTS AND OFFERINGS

The listing on the following pages is as follows:

- Biology
- Biomedical Engineering
- Chemistry
- Classics
- Comparative Literature
- Economics
- Education
- English
- Fine Arts
- Geography
- Geology
- German
- History, Government and International Relations
- Linguistics
- Mathematics
- Music
- Philosophy
- Physics
- Psychology
- Romance Languages
- Russian
- Sociology

Biology

DEPARTMENT FACULTY

Rudolph F. Nunnemacher, Ph.D., *Professor of Zoology, Department Chairman*
Vernon Ahmadjian, Ph.D., *Professor of Botany*
Werner P. Koella, M.D., *Professor (affiliate) of Neurophysiology*
Harris Rosenkrantz, Ph.D., *Professor (affiliate) of Biology*
Aldo P. Truant, Ph.D., *Professor (affiliate) of Biology*
George Camougis, Ph.D., *Associate Professor (affiliate) of Physiology*
Donald S. Layne, Ph.D., *Associate Professor (affiliate) of Biology, Director of Steroid Training Program*
David G. Moulton, Ph.D., *Associate Professor of Physiology*
John T. Reynolds, Ph.D., *Associate Professor of Microbiology**
John J. Brink, Ph.D., *Assistant Professor of Biochemistry*
Joseph C. Curtis, Ph.D., *Assistant Professor of Zoology*
Burton N. Gates, Ph.D., *Research Associate in Botany*

*On leave of absence, 1966-67.

UNDERGRADUATE PROGRAM

Biology 11 presents a comprehensive view which is prerequisite to all other courses in the department. A departmental major must take Biology 11, three advanced courses in biology, Chemistry 11, Physics 11, Mathematics 12 and at least one additional course in chemistry, physics or geology. Mathematics 12 does not count toward the fulfillment of the major requirements.

HONORS PROGRAM

An Honors Program is available to especially well qualified majors and encourages the student to engage in an independent research project during the senior year. Frequently the Honors Project is the continuation of research begun during the summer under the National Science Foundation Undergraduate Research Participation Program.

GRADUATE PROGRAM

The department offers courses leading to Master of Arts and Doctor of Philosophy degrees in specialized phases of bacteriology, biochemistry, botany, cytology, physiology and zoology. Admission to the graduate program assumes adequate preparation in the basic sciences, an overall undergraduate record of B or better, and satisfactory standing in the Graduate Record Examination. Tuition scholarships and Teaching Assistantships are available. More detailed information can be obtained by writing to the department chairman.

Master of Arts: The program usually requires three or four semesters of academic work, including participation in the Graduate Seminar—Biology 350, teaching experience, and research culminating in an acceptable thesis. Prior to or during the program the student must have a semester course beyond the introductory biology level in botany, zoology and physiology.

Doctor of Philosophy: The requirements are identical with those of the University and can be found in the catalog section on The Graduate School and includes teaching experience. The student's program is planned according to his needs with his program director.

TRAINING PROGRAM FOR STEROID BIOCHEMISTRY

A training Program for Steroid Biochemistry has been established at the University through the cooperation of the Departments of Biology and Chemistry with the Worcester Foundation for Experimental Biology with the support of the National Cancer Institute and the U. S. Public Health Service. Post-doctoral fellowships are available for persons possessing the Ph.D., M.D., or equivalent training. Further information may be obtained from the *Program Director, Dr. Donald S. Layne.*

COURSES

Note: Laboratory fees are charged for all courses where either a laboratory or a laboratory fee is indicated.

11. GENERAL BIOLOGY.

Principles and problems of modern biology. This course, or its equivalent, is a prerequisite for all other courses in the department. Three lectures and one laboratory period per week. Open to freshmen. Indivisible. *Four semester hours each semester.* Staff.

12. VERTEBRATE MORPHOLOGY.

The year course is divided into thirds of which the first is concerned with comparative anatomy, the second histology and the final third embryology. Two lectures, two laboratories per week. *Four semester hours each semester.* Mr. Nunnemacher.

15b. SYSTEMATIC BOTANY. Not offered, 1966-67.

Taxonomy and classification of flowering plants, with emphasis on New England flora. A collection of 100 plants is required as well as a two-day spring collecting trip to the Berkshires. Three lectures and one laboratory period per week. Prerequisite: first semester, Biology 11. *Four semester hours.* Mr. Ahmadjian.

17b. General Ecology.
Introductory study of the distribution of plants and animals, their inter-relationships and adaptions to a wide variety of environments such as seashore, sand dunes, woodlands and ponds. Field trips to Mt. Monadnock and other areas of ecological interest will be taken during laboratory periods or on Saturday. Three lectures and one laboratory period per week. Usually offered during the summer. *Four semester hours.*

18b. Genetics.
Principles and problems of genetics. *Three semester hours.* Mr. Ahmadjian.

19a. Microbiology.
An introduction to the biology of microorganisms. Laboratory work will be concerned with an introduction to the methodology involved in the study of bacteria, algae and fungi. Prerequisites: Biology 11 and Chemistry 11 or their equivalents. Biology 137a or an introductory semester course in Physiology is recommended. Three lectures, one laboratory per week. *Four semester hours.* Mr. Ahmadjian, Mr. Reynolds.

110b. Evolution. Not offered, 1966-67.
General principles. *Three semester hours.* Mr. Shepro.

137a. Cellular Biology.
The cell as a structural and functional unit. Introduction to the physiochemical properties and metabolic roles of molecules and macromolecules of cellular origin. Discussion of the roles of the nucleus and cytoplasm in the regulation of cellular processes. Three lectures per week. Prerequisite: Biology 11. *Three semester hours.* Mr. Curtis.

140a. Principles of Physiology. Not offered, 1966-67.
Introduction to basic physiological concepts at the cellular level followed by animal physiology, with emphasis on vertebrates. Three lectures per week. Prerequisite: Biology 11. *Three semester hours.*

204b. Lichenology.
Taxonomy and physiology of lichens and isolated lichen components. Laboratory emphasis on special projects and field work. Three lectures and one laboratory period per week. Prerequisite: Biology 19a or consent of the instructor. *Four semester hours.*
Mr. Ahmadjian.

215a. Invertebrate Zoology. Not offered, 1965-66.

222. Advanced Embryology. Not offered, 1966-67.
Introduction to experimental morphogenesis. Consideration of the chemical and physical events associated with cellular differentiation, tissue interactions and growth regulation during embryonic development. Three lectures per week. Prerequisite: Biology 12. *Three semester hours.* Mr. Curtis.

224a. Neuroanatomy. Not offered, 1966-67.
The structural and functional organization of the human central nervous system. Three lectures or demonstrations per week. Prerequisite: Biology 12 or consent of the instructor. *Three semester hours.* Mr. Nunnemacher.

225a, b. Electron Microscopy
Introduction to the principles of electron optics, use of the electron microscope, prepa-

ration of specimens and the techniques of electron microscopy applicable to biological investigations. Two lectures and two laboratory periods per week. Prerequisites: permission of the instructors. *Four semester hours.* Mr. Curtis, Mr. Nunnemacher.

231b. BACTERIAL PHYSIOLOGY. Not offered, 1966-67.
Lecture topics and laboratory exercises selected to demonstrate chemical and physical principles underlying bacterial activities. Two lectures and two laboratory periods per week. Prerequisites: Biology 230b and consent of the instructor. Biology 240a is recommended. *Four semester hours.*

232b. BACTERIOLOGY.
The biology of the bacteria and certain related forms. Prerequisites: Biology 19 and Chemistry 13 or their equivalents. Three lectures and one laboratory per week. *Four semester hours.*

240a. GENERAL PHYSIOLOGY.
Introduction to the physical and chemical phenomena underlying the functions common to living organisms. Two lectures and two laboratory periods per week. Prerequisites: Biology 11, Chemistry 11 and Physics 11. *Four semester hours.* Mr. Moulton.

241a. ENDOCRINOLOGY.
General principles of vertebrate endocrinology. *Three semester hours.* Mr. Halkerston.

242a. COMPARATIVE ANIMAL PHYSIOLOGY. Not offered, 1966-67.

248b. SENSORY PHYSIOLOGY.
A seminar on the principles of organization and function of invertebrate and vertebrate sense receptors. Prerequisite: Biology 140 or 240. *Three semester hours.* Mr. Moulton.

249b. NEUROPHYSIOLOGY. Not offered, 1966-67.
Physiology of central and peripheral nervous systems, receptors and muscles, considered in both vertebrates and invertebrates. Three lectures and one laboratory period per week. Prerequisite: Biology 140b or 240a. *Four semester hours.* Mr. Moulton.

250a. UNDERGRADUATE SEMINAR IN BIOLOGY. Not offered, 1966-67.

257b. BIOPHYSICS. Not offered, 1966-67.
Consideration of the physical properties of biological systems. Influence of various physical agents upon biological structure and function. Physical methods of analysis of biological macromolecules. Three lectures per week. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Curtis.

260a, b. SPECIAL PROBLEMS.
Advanced semi-independent study of an approved topic under the direction of a departmental member. Consent of instructor required. Required for honors in biology. *Three or four semester hours.* Staff.

S. 267. INSTRUMENTAL PROCEDURES IN BIOLOGICAL INVESTIGATIONS.
Theory and application of various analytical procedures and use of modern instrumentation in biological problems. Practical introduction to analytical balance, centrifuge, vacuum distillation, pH, dialysis, chromatography, counter-current distribution, photoelectric colorimetry, fluorometry, turbidometry, spectrophotometry and spectroscopy.

Instrumentation will be coordinated with techniques of tissue preparation, histochemistry and radioactive tracers. Offered in the summer. *Four semester hours.* Mr. Rosenkrantz.

268a. PRINCIPLES OF PHARMACOLOGY. Not offered, 1966-67.
This course is intended to acquaint the student or research worker with established principles and the more important phenomena involved in the study of pharmacology. Particular emphasis is placed on the quantitative aspects of the interaction of chemical compounds or drugs with biological systems. The principal pharmacological actions of several important drugs are illustrated. *Three semester hours.* Mr. Truant.

270a, b. BIOCHEMISTRY.
The principles of mechanisms of biochemical reactions in an understanding of the metabolism of foodstuffs and the role of enzymes, vitamins and hormones. An acquaintance with the instrumentation in biochemical research will be presented. Prerequisite: Chemistry 13. Three lectures, one laboratory per week. *Four semester hours.* Mr. Brink.

281a. ADVANCED LICHENOLOGY. Not offered, 1966-67.
An introduction to the literature and research techniques of experimental lichenology. Three lectures per week. *Three semester hours.* Mr. Ahmadjian.

300. READINGS AND RESEARCH IN BIOLOGY.
Three to four semester hours. Staff.

325a. SEMINAR IN ULTRASTRUCTURE.
Discussion of the structure of macromolecules and subcellular organelles in relation to their biological functions. Evidence obtained by a variety of physical and chemical methods will be considered, particular emphasis being placed on electron microscopic studies. *Three semester hours.* Mr. Curtis.

332a. SEMINAR IN BACTERIOLOGY.
Selected topics in bacterial ecology and physiology. Consent of instructor required. *Three semester hours.*

350. GRADUATE SEMINAR. Staff.

360. MASTER'S THESIS. Staff.

390. DOCTORAL DISSERTATION. Staff.

Biomedical Engineering

The Program in Biomedical Engineering is a graduate program under the joint sponsorship of Clark University and Worcester Polytechnic Institute. The aim of the program is to combine the resources of the two institutions to provide special education in this rapidly developing interdisciplinary area. Students entering the program must have a bachelor's degree in mathematics or one of the basic or engineering sciences. The degree program will include a minimum of five full courses taken at both institutions and leading to a master's degree. All students will be expected to achieve some basic knowledge in biology, chemistry, engineering, mathematics and physics. Since a thesis on research is also required, the program will normally require at least two years of study. In general, the requirements for the degree will be consistent with the requirements for master's degrees at both institutions. The detailed requirements for each student will be worked out by a Committee on Biomedical Engineering made up of faculty members from both institutions. Students enrolled at Clark will receive an M.A. in Biomedical Engineering, the actual degree noting the cooperation of W.P.I. Conversely, students enrolled in the first instance at W.P.I. will receive the M.S. or Ph.D. in Biomedical Engineering, with the cooperation of Clark indicated on the degree.

For further information, write to: Director, Biomedical Engineering Program, Clark University, Worcester, Massachusetts 01610.

Chemistry

DEPARTMENT FACULTY

Thomas T. Sugihara, Ph.D., *Professor of Chemistry, Department Chairman*
Gerson Kegeles, Ph.D., *Professor of Chemistry*
Edward N. Trachtenberg, Ph.D., *Associate Professor of Chemistry*
Wen-Yang Wen, Ph.D., *Associate Professor of Chemistry*
Allan M. Zwickel, Ph.D., *Associate Professor of Chemistry*
Daeg S. Brenner, Ph.D., *Assistant Professor of Chemistry*
Karen L. Erickson, Ph.D., *Assistant Professor of Chemistry*

UNDERGRADUATE PROGRAM

In offering a variety of introductory courses in the major branches of modern chemistry, the department seeks to satisfy the needs and desires of (1) those interested in pursuing a career in chemistry, (2) those in related science areas, the proper understanding of which requires a background in chemistry, and (3) the non-scientists who want some knowledge of chemistry as part of their liberal education. In addition to these courses, a large number of more specialized subjects are treated in advanced courses.

The requirements for a major are Chemistry 13 with either 103 or 113a, 113b, 14a, 19 and 290a; Physics 11 and Mathematics 12; and three one-semester elective courses of which one must be in chemistry and the other two in mathematics beyond Mathematics 12, in physics beyond Physics 11 or in biology. These requirements must be met starting with the class of 1968; earlier classes require Chemistry 11, 13, 14a, 19, 290a, two semesters of chemistry elective courses, Physics 11 and Mathematics 12.

Majors are urged to take additional courses in mathematics and at least two years of German. Those who intend to do graduate work in chemistry are further advised to acquire a reading knowledge of either French or Russian.

An entering student with a sound background in chemistry is encouraged to take a placement examination given at the beginning of the academic year. Satisfactory performance on this examination can satisfy the Chemistry 11 prerequisite for Chemistry 13. This will permit completion of the requirements for the major no later than the junior and in some cases the sophomore year, leaving the student's senior year open for more sophisticated pursuits. Among these are the honors program and an Undergraduate Research Participation Program sponsored by the National Science Foundation. The latter program is also open to anyone who has completed his freshman year; for further information, consult the program director, Mr. Trachtenberg.

GRADUATE PROGRAM

The department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy with specialization in various fields of chemistry and in chemical physics. Entering students must take placement examinations in the basic areas of undergraduate instruction; these examinations are used solely for the purpose of arriving at a satisfactory program of courses. Beginning with graduate students entering in 1965, up to one year's equivalent of teaching apprenticeship will be required of all candidates for advanced degrees.

The requirements for the Master's degree are essentially those of the University. The course requirements for the Ph.D. are as follows:

1. All students must demonstrate satisfactory performance (B— or better) in Chemistry 230a, 322a, 340b and 379b. Students specializing in organic chemistry may substitute 290a for 340b.
2. All students must demonstrate satisfactory performance (B— or better) in at least two of the following courses: Chemistry 212a, 242b, 280b, 321b, 323b, 333b, 361b and 369a.
3. Additional courses may be suggested by the student's research supervisor.

Qualifying and preliminary examinations must be passed, and the University language requirement must be met. Students not satisfying the University requirement in German but requiring it for their research may be asked to satisfy the department as to their proficiency in reading scientific German. For further details on formal requirements consult the appropriate departmental publications.

The doctoral program in chemical physics is jointly administered by the Departments of Chemistry and Physics. It differs from the above in that placement examinations are not required, physics requirements are substituted for some of the chemistry requirements and research is carried out in the Department of Physics.

Graduate scholarships, teaching assistantships, research fellowships, NDEA fellowships and NSF and NASA traineeships are available. Further information on these awards may be obtained from the department chairman.

COURSES

11. General Chemistry.

Systematic study of the elements and their principal compounds and the fundamental laws and theories of chemistry. Three lectures and three laboratory hours per week. Laboratory fee. Divisible with consent of the instructor. *Four semester hours per semester* Mr. Zwickel, Mr. Wen.

13. Organic Chemistry.

Three lectures per week. Chemistry 103 or 113a must be taken concurrently. Prerequisite: a grade of C— or better in Chemistry 11. Divisible with consent of the instructor. *Three semester hours per semester.* Mr. Trachtenberg.

14a. Analytical Chemistry.

Theoretical and descriptive inorganic chemistry. Laboratory synthesis and analysis of simple inorganic systems. Two lectures and six laboratory hours per week throughout the semester. Laboratory fee. Prerequisite: Chemistry 11. *Four semester hours.* Mr. Wen.

19. Physical Chemistry.

Principles of physical chemistry applied to gases, liquids, solutions, crystalline solids: chemical thermodynamics, homogeneous and heterogeneous equilibria, electrolytic conductance and transference, electromotive force, reaction kinetics, colloids. Three lectures and three laboratory hours per week. Laboratory fee. Prerequisites: Physics 11, Mathematics 12, a grade of C or better in Chemistry 11 or 13; Chemistry 13 and 14a may be taken concurrently. Additional course work in mathematics is recommended. *Four semester hours each semester.* Mr. Kegeles.

103. ORGANIC CHEMISTRY LABORATORY.

Laboratory study of the preparation and properties of important organic compounds. Three laboratory hours per week. Laboratory fee. Must be taken concurrently with Chemistry 13. Divisible with consent of the instructor. *One semester hour per semester.* Miss Erickson.

113a. ACCELERATED ORGANIC CHEMISTRY LABORATORY.

Essentially identical to Chemistry 103. One hour conference and seven hours of laboratory per week. Laboratory fee. Must be taken concurrently with Chemistry 13. Strongly recommended for Chemistry Majors; optional for others. *Two semester hours.* Miss Erickson.

113b. QUALITATIVE ORGANIC ANALYSIS.

Laboratory study of the identification of organic compounds by both classical and modern instrumental techniques. Laboratory fee. Prerequisites: Chemistry 113a or consent of the instructor, and Chemistry 13 concurrently or previously. One hour conference and 7 hours of laboratory per week. Required for Chemistry Majors. *Three semester hours.* Miss Erickson.

212a. INORGANIC CHEMISTRY.

Theoretical and descriptive inorganic chemistry. Not open to those who have taken 14a during the period 1962-1965. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Zwickel.

214. SPECIAL PROJECTS.

Individual work of an investigative nature which may include a search of chemical literature as well as laboratory work. *Three semester hours each semester.* Staff.

215. HONORS COURSE.

Primarily for majors seeking departmental honors in chemistry. A laboratory research project. *Three semester hours each semester.* Staff.

230a. PHYSICAL ORGANIC CHEMISTRY.

Fundamentals of organic chemistry. Molecular structure, acidity and basicity, kinetics and mechanisms with emphasis on the most recent advances in organic chemical theory. Prerequisites: Chemistry 13 and 19 or consent of the instructor. *Three semester hours.* Mr. Trachtenberg.

242b. NUCLEAR AND RADIOCHEMISTRY.

Fundamentals of nuclear science; production, isolation, identification and measurement of radioactive atoms. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Sugihara.

280b. INSTRUMENTAL METHODS.

The principles and application of modern instrumental techniques to the separation and analysis of mixtures and for the characterization of pure compounds. Two lectures and six laboratory hours per week. Laboratory fee. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Brenner.

290a. ADVANCED PHYSICAL CHEMISTRY.
Elementary quantum-mechanical treatment of the structure of nuclei, atoms and molecules. Statistical mechanics of simple systems. Three lectures per week. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Sugihara.

300. RESEARCH.
Three to fifteen semester hours each semester. Staff.

321b. COLLOID CHEMISTRY.
Osmotic and sedimentation equilibrium. Diffusion, sedimentation velocity, countercurrent distribution and chromatographic theory. Kinetics of rapid macromolecular interactions. Offered in alternate years. *Three semester hours.* Mr. Kegeles.

322a. THERMODYNAMICS.
Applications of classical thermodynamics to chemical systems. *Three semester hours.* Mr. Kegeles.

323b. STATISTICAL MECHANICS.
Statistical mechanical analogs of thermodynamic functions and their application to chemical systems. Prerequisites: Chemistry 290a and 322a, or their equivalents. *Three semester hours.* Mr. Wen.

324b. REFRACTOMETRIC TECHNIQUES. Not offered, 1966-67.
Applications of refractometric and interferometric methods to the study of optically inhomogeneous media. Methodology employed in electrophoresis, ultracentrifugation, diffusion and chromatography. Offered in alternate years. *Three semester hours.* Mr. Kegeles.

331b. ADVANCED PHYSICAL ORGANIC CHEMISTRY. Not offered, 1966-67.
Modern interpretation of organic reaction mechanisms including molecular rearrangements, chain reactions and other reactions not covered in Chemistry 230a. Prerequisite: Chemistry 230a. Offered in alternate years. *Three semester hours.* Mr. Trachtenberg.

333b. SYNTHETIC ORGANIC CHEMISTRY.
Lectures on synthesis of organic molecules emphasizing scope and limitations of general methods, mechanism and stereochemistry. Synthesis of carbon to carbon bonds, oxidation and reduction. Prerequisite: Chemistry 230a, or consent of the instructor. Offered in alternate years. *Three semester hours.* Mr. Trachtenberg.

335a. NATURAL PRODUCTS.
The chemistry of selected naturally occurring compounds. Structure determination, synthesis, mechanistic interpretation of exotic transformations, and biogenetic theory. Prerequisite: consent of the instructor. *Three semester hours.* Miss Erickson.

340b. QUANTUM CHEMISTRY.
Elementary quantum mechanics of simple systems, properties of wave functions, approximation methods for complex systems. *Three semester hours.* Mr. Sugihara.

344a. SELECTED TOPICS IN ADVANCED NUCLEAR CHEMISTRY.
Discussion of current experimental and theoretical literature in nuclear reactions, fission, nuclear spectroscopy, or applications of nuclear methods to problems in geochemistry. Prerequisite: Chemistry 242b. *Three semester hours.* Mr. Sugihara.

350. Seminar.
Reports on research work and discussions of recently published work. No credit.
Guest Lecturers, Staff and Graduate Students.

360b. Coordination Compounds.
Chemical and physical properties of complexes, including theories of coordination, stereoisomerism, reaction mechanisms and solution stabilities. Offered in alternate years. *Three semester hours.* Mr. Zwickel.

361b. Molecular Structure. Not offered, 1966-67.
Physical methods relevant to the determination of the structure of molecules (x-rays, electron diffraction, nuclear magnetic resonance, electronic properties, etc.). Prerequisite: consent of the instructor. Offered in alternate years. *Three semester hours.*
Mr. Zwickel.

369a. Electronic Spectroscopy. Not offered, 1966-67.
Introduction to the studies of ultraviolet and visible absorption spectra as well as emission spectra. Prerequisite: consent of the instructor. Offered in alternate years. *Three semester hours.* Mr. Wen.

379b. Special Topics.
Research seminars; reports by graduate students. *Three semester hours.* Staff.

380. Research Conference.
Informal reports of research work being done in the laboratory. No credit.
Staff and Graduate Students.

Classics

DEPARTMENT FACULTY

Claude W. Barlow, Ph.D., *Professor of Classics*

UNDERGRADUATE PROGRAM

Undergraduate courses are provided for the acquisition of a reading knowledge of Greek and Latin and for the study of literary masterpieces in those original languages. Courses also are offered for the candidate who wishes to major in Latin. The major should include Latin 13 during the freshman year, three advanced Latin courses and three courses in related fields to be approved by the department. Other courses, given entirely in English, deal with phases of the Greek and Roman civilizations. Students who wish to elect Elementary Greek or Intermediate Latin should consult the department as far in advance as possible since these courses are not offered every year.

COURSES

Greek

11. Elementary Greek.
Greek grammar through forms, syntax, vocabulary and reading; selections from Xenophon's *Anabasis* or other simple prose. Open to freshmen. Indivisible course. *Three semester hours each semester.* Mr. Barlow.

12. Attic Greek Prose; Homer's *Iliad*.
Prerequisite: Greek 11. *Three semester hours each semester.* Mr. Barlow.

13. GREEK DRAMA. Not offered, 1966-67.
Prerequisite: Greek 12 or the equivalent. *Three semester hours each semester.*

123a. GREEK CIVILIZATION.
Lectures, readings and discussion on the history, literature, art, religion and government of ancient Greece, with emphasis on the elements which have contributed most to Western civilization. For students who entered Clark before September, 1964, Greek 123a may be counted with Latin 123b to fulfill the general degree requirement in art and music (Group D) but not in fulfillment of the requirement in foreign language. *Three semester hours.* Mr. Barlow.

Latin

11. ELEMENTARY LATIN. Not offered, 1966-67.
Three semester hours each semester.

12. INTERMEDIATE LATIN; VIRGIL'S *Aeneid.* Not offered, 1966-67.
This course will begin with an intensive review of forms, syntax and vocabulary for at least seven weeks. Prerequisite: two years of secondary school Latin. Offered in alternate years. *Three semester hours each semester.*

13. CATULLUS AND PLAUTUS; TERENCE AND HORACE.
Prerequisite: Latin 12 or three years of secondary school Latin. *Three semester hours each semester.* Mr. Barlow.

15. ROMAN HISTORIANS; ROMAN SATIRE.
Prerequisite: Latin 13. *Three semester hours each semester.* Mr. Barlow.

17. ROMAN PHILOSOPHERS; POETS OF THE AUGUSTAN AGE. Not offered, 1966-67.
Three semester hours each semester.

19. SURVEY OF LATIN LITERATURE. Not offered, 1966-67.
Three semester hours each semester.

123b. ROMAN CIVILIZATION.
Lectures, readings and discussion on the history, literature, philosophy, art, religion, law and government of ancient Rome, with emphasis on the transmission of Greek civilization and the condition of the Roman Empire during the early years of Christianity. For students who entered Clark before September, 1964, Latin 123b may be counted with Greek 123a to fulfill the general degree requirement in art and music (Group D) but not in fulfillment of the requirement in foreign language. Given in English. Open to freshmen. *Three semester hours.* Mr. Barlow.

Comparative Literature

18. LITERATURE AND THE NATURE OF MAN. Not offered, 1966-67.
The course is designed to serve the general student by providing him with an opportunity to investigate ideas held by outstanding literary artists of the Western World concerning the nature of man and his relation to the universe. The works are also to be studied as representatives of the cultures of which they are products. The course is

planned not only to introduce the student to a body of knowledge and experience held in common by educated men and women in our society but also to help him to clarify his thinking concerning certain basic problems and to develop attitudes that are both humane and creative. The subject matter undertaken includes Sophocles' *Oedipus the King,* the *Book of Job,* the *Inferno* from Dante's *Divine Comedy,* Shakespeare's *King Lear,* Milton's *Paradise Lost,* Moliere's *Misanthrope,* Goethe's *Faust,* Part I, and selected poems of T. S. Eliot. All non-English works are read in translation. Meets the requirement for six hours in literature taught in English but not the requirement in Fine Arts. Classified as a Group C course. Open to sophomores, juniors and seniors with the consent of the instructors. Successful completion of the first semester is normally required for admission to the second semester. *Three semester hours each semester.*

Mr. Anderson, Mr. King.

19a. AN INTRODUCTION TO OLD TESTAMENT LITERATURE.
Emphasis will be placed upon the historical development of Old Testament literature, as seen through the Mosaic Tradition, the Historical Books, the Prophetic Writings, and the Wisdom Literature. A comparative analysis of the Dead Sea Scrolls and a study of the impact of the Bible upon later literature will also be included. *Three semester hours.*

Mr. Davis.

ENGLISH 127b. MODERN CONTINENTAL DRAMA.
A survey of the drama of continental Europe, excluding England, from Ibsen to the drama of the absurd. Special emphasis will be given to the major figures, including Ibsen, Strindberg, Chekhov, Pirandello and Brecht. Offered in alternate years. *Three semester hours.* Mr. Schroeder.

ENGLISH 245b. MODERN CONTINENTAL FICTION. Offered in alternate years.
Selected masterpieces by modern European novelists are studied closely in English translation, with attention to their philosophical, moral, social, political and psychological insights as well as to their literary forms. Writers considered include Flaubert, Turgenev, Tolstoy, Dostoyevsky, Gide, Proust, Mann, Kafka and Camus. Students are encouraged to read in the original languages when possible. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Beard.

GERMAN 170a. THE FAUST THEME IN LITERATURE. Not offered, 1966-67.
See description under German. Mr. Arndt.

German 172. THE GERMAN CONTRIBUTION TO WORLD LITERATURE. Not offered, 1966-67.
See description under German. Mr. Arndt.

RUSSIAN 179. SURVEY OF RUSSIAN LITERATURE. Not offered, 1966-67.
See description under Russian. Mrs. Sorokin.

RUSSIAN 180. SOVIET LITERATURE. Not offered, 1966-67.
See description under Russian. Mrs. Sorokin.

Economics

DEPARTMENT FACULTY

Howard W. Nicholson, Ph.D., *Professor of Economics, Department Chairman**
James A. Maxwell, Ph.D., *Professor of Economics*
F. Eugene Melder, Ph.D., *Professor of Economics*
Roger C. Van Tassel, Ph.D., *Professor of Economics*
George E. Hargest, M.B.A., *Associate Professor of Economics*
Donald Savage, M.A., *Assistant Professor of Economics*
Sang C. Suh, M.A., *Assistant Professor of Economics*
George A. Balko, Jr., M.B.A., *Assistant Professor of Economics*
Frederick E. Bamford, M.B.A., *Assistant Professor of Economics*
Frederick W. Bell, Ph.D., *Assistant Professor (Affiliate) of Economics*
Albert J. Sargent, M.B.A., *Lecturer in Economics*

*On Leave, 1966-67.

UNDERGRADUATE PROGRAM

The first aim of the department, in its undergraduate courses, is to give the student a comprehensive grasp of the underlying principles and functions of economic institutions, and to develop habits of systematic thought about these institutions. Economics 11 is a prerequisite to all other courses in Economics. Majors in Economics are required to take Economics 105a, Intermediate Economic Theory, and Economics 105b, National Income Analysis and are strongly advised to take Economics 160, Introduction to Statistical Method. Undergraduate majors in economics may choose, in accordance with their interests and needs, from a variety of courses within the department and from related courses in other departments. Students planning on graduate study in Economics are advised to elect courses in Economic Theory, Statistics and Econometrics, and Mathematics. Students interested in graduate study in Business Administration are advised to elect courses in Accounting, Statistics, and Econometrics, and those courses in Economics concerned with the application of economic analysis to business problems.

Candidates for departmental honors will engage in a program of independent study consisting of reading and research designed in part to give them specialized training in the fields of their major interest and in part to supplement formal courses. Ordinarily a candidate will begin his honors work in the second semester of the junior year by enrolling in the Honors Seminar.

In making elections, students should bear in mind that some advanced courses are offered only in alternate years.

GRADUATE PROGRAM

The University offers facilities for graduate study and research leading to the Master of Arts degree and Doctor of Philosophy degree in Economics for a small number of selected students.

Graduate students may elect to take a limited amount of work in related courses offered by other departments.

Scholarships and fellowships are available for a limited number of well-prepared students. These appointments exempt their holders from tuition fees and some carry stipends in varying amounts. Several teaching assistantships are also awarded which enable graduate students to gain experience in undergraduate instruction. These carry remission of tuition and a cash payment, up to $2,000 for part-time work (one-half).

Master of Arts Program

The program for the degree of Master of Arts is worked out individually with each student.

An academic year of full-time study in residence, or its strict equivalent in summer sessions and part-time study, is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at the University under the immediate personal supervision of at least one member of the University faculty. A program of full-time study is equivalent to twenty-four semester hours.

A student should discuss his plans with the department chairman on or before Registration Day and secure approval of his course program. Each M.A. candidate is required to take a course in Theory, Intermediate or Advanced, depending upon his background. In addition, each first year graduate student is required to enroll in the Department Seminar, which meets weekly throughout the year. The Seminar is equivalent in credit to a semester course. Several visiting economists present papers each semester.

A Master's thesis will be written on a topic in the field of the student's special interest under the supervision of a member of the Department. Each student should be sure to enroll for a thesis course at the beginning of his program. The thesis course is equivalent to six semester hours. This, added to the twenty-four semester hours of course credit, gives the student the necessary thirty semester hours of credit for the M.A. degree.

Doctor of Philosophy Program

For the degree of Doctor of Philosophy in Economics, each student must choose five fields of study to be agreed upon as early as possible in the first year of residence beyond the M.A. A range of courses is offered in cycles of two or three years.

Two full academic years of graduate work, or its equivalent in part-time work, is necessary for admission to Ph.D. candidacy. One of these years must be spent in residence at Clark University. In residence is broadly defined as work done at Clark University under the immediate personal supervision of at least one member of the University faculty. For the degree of Doctor of Philosophy, twenty-four semester hours is a normal full-time program.

All Ph.D. candidates will be required to demonstrate proficiency in two fields, Economic Theory and Quantitative Analysis. In addition, Ph.D. candidates will be required to demonstrate a thorough knowledge of three of the following fields: Money and Banking, Public Finance, Industrial Organization and Government Control, International Trade, Labor, Economic Growth *or* one field selected from related subjects. In demonstration of proficiency in the field of Economic Theory, candidates will be expected to be familiar with the History of Economic Doctrine.

Each student should decide, with the advice and approval of the Department Chairman, what he will offer for his language requirement. A prospective candidate must pass a University language requirement—i.e. a reading examination in French, German, Russian or Spanish. In addition he must complete a Departmental requirement in a second language or in Mathematics—i.e. offer one of the following: (a) pass a reading examination in French, German, Russian or Spanish; or (b) satisfactorily complete a program in Mathematics for Economists given by the Department. The option made by the prospective candidate must be reported to the Dean of the Graduate School not later than November 1st of his second year of graduate work.

After completing at least three semesters of graduate work and passing one language requirement, upon application, a student may take a six-hour written examination in Economic Theory and its history. The written examination is regularly scheduled by the Department twice during an academic year; normally in September and March. After the preliminary written examination has been passed and all language and other requirements have been completed, a two-hour oral examination will be held covering three of the candidate's fields. Unless the dissertation field is Quantitative Analysis, this field must be one of the three offered at the preliminary oral. In the preliminary examination, the student is expected to demonstrate scholarly ability by: (a) such discussion of the subject matter and the major problems of each field as to show not only knowledge of content but capacity for interpretation, and (b) appreciation of the kinds of primary sources available and serviceable knowledge of reference works and the principal secondary sources. The preliminary oral should, if possible, be taken while the student is still in residence, and in no case be delayed long thereafter.

Admission to candidacy should follow closely upon the passing of the preliminary examinations, and active research for the dissertation should begin as soon as practicable.

The fifth or reserve field is the one in which the student writes his dissertation. The dissertation must be a real contribution to knowledge, based upon independent research, convincingly presented, and acceptably written.

The final oral examination will cover the dissertation and the special field in which it lies. In this examination, the student is expected to display thorough and expert knowledge of his subject, including acquaintance with primary sources and monographs, as well as general bibliography. Some teaching experience at Clark, or such other teaching as the Department may regard as equivalent, is prerequisite to the Doctor's degree.

COURSES

11. Principles of Economics.

Open to freshmen. *Three semester hours each semester.* Mr. Van Tassel.

100. Introduction to Accounting.

Approaching accounting as an analytical tool, the accounting cycle and the resulting financial and fund flow statements are developed for service, merchandising and manufacturing enterprises within the context of the various forms of business organization. *Three semester hours each semester.* Mr. Hargest.

105a. Intermediate Economic Theory.

An analysis of contemporary price theory. *Three semester hours.* Mr. Savage.

105b. National Income Analysis.

A study of contemporary income theory. *Three semester hours.* Mr. Savage.

13a. Money and Banking.

Three semester hours. Mr. Savage.

140b. CONSUMER ECONOMICS.
Theories of consumer choice making are analyzed. Rational planning and economy in important fields of consumers' decisions are explored. The role of government and private agencies in consumer education and protection are reviewed. *Three semester hours.* Mr. Melder.

142a. HISTORICAL ANALYSIS OF ECONOMIC GROWTH.
Economic History of selected countries compared for periods preceding and during transition to modern economic organization. Comparisons are drawn from Europe, Asia, and North America. Prerequisite: Economics 11. *Three semester hours.* Mr. Melder.

142b. ECONOMICS OF UNDERDEVELOPED REGIONS.
An analysis of underdeveloped nations. Economic, cultural, social, and political factors that have an importance in economic development. Prerequisite: Economics 11. *Three semester hours.* Mr. Melder.

15a. PUBLIC FINANCE.
The principles of governmental expenditures, revenues, and debts, with particular reference to the United States. *Three semester hours.* Mr. Maxwell.

150a. PRINCIPLES OF MARKETING.
The efficiency, social implications and public control of the activities and practices of business institutions in effecting a flow of tangible commodities between producer and consumer. *Three semester hours.* Mr. Balko.

160a. INTRODUCTION TO STATISTICAL ANALYSIS.
The theory and application of frequency distributions; measures of central tendency; dispersion; skewness and kurtosis. An introduction to probability theory; theoretical probability distributions; estimation by confidence interval; decision making rules and their power curves; acceptance sampling; quality control; analysis of variance; and other statistical tests of significance complete consideration of univariate distributions. Prerequisite: Mathematics 11 or equivalent. *Three semester hours.* Mr. Sargent.

160b. INTRODUCTION TO STATISTICAL ANALYSIS.
Problems are integrated with a systematic presentation of principles and methods. Topics include price and quantity indexes; seasonal trend and cycle analysis; linear and curvilinear regression and consideration of the stochastic (Ut) term. Finally, tests of statistical significance on the parameters of the regression equation are made. Prerequisite: Economics 160a. *Three semester hours.* Mr. Sargent.

184a. MANAGEMENT-LABOR RELATIONS.
Management-employee relationships with special reference to union and management bargaining. Opportunity for development of perspective and judgment regarding problems of management in shop industrial situations and labor relations law. Discussion and case methods are employed. Prerequisite: Economics 11. *Three semester hours.*
Mr. Melder.

200a. THEORIES OF ECONOMIC GROWTH.
An evaluation of the major elements in modern theories of economic development. Problems of measurement of economic growth and change. Prerequisite: Economics 105. *Three semester hours.* Mr. Suh.

200b. ECONOMIC POLICIES FOR DEVELOPMENT.
Domestic and international trade policies for development. Theories and problems of economic planning. Prerequisite: Economics 200a. *Three semester hours.* Mr. Suh.

201a. ECONOMIC THEORY—MICRO-ECONOMICS.
Analysis of consumer behavior; the theory of production; equilibrium of the firm and the industry; market structures, the pricing of factors of production; allocation of resources in a market economy; general equilibrium analysis; and introduction to welfare economics. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Suh.

201b. ECONOMIC THEORY—MACRO-ECONOMICS.
Income and employment theory; the Keynesian aggregative system and post-Keynesian systems; static equilibrium theory; an introduction to macrodynamics. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Savage.

202. COST ACCOUNTING.
Basic principles of cost accounting as related to job order, process, estimated and standard cost systems. Cost for profit determination and managerial decision making are considered. Prerequisite: Economics 100. *Three semester hours.* Mr. Hargest.

207a. INTERNATIONAL TRADE THEORY.
Emphasis is put on international value determination and the mechanisms for adjusting to international disequilibrium. Prerequisite: Economics 13 or 105. *Three semester hours.* Mr. Van Tassel.

207b. INTERNATIONAL ECONOMIC POLICY.
A review of the rise of the world trading economy, techniques of commercial policy, and major questions of international economic policy. Prerequisite: Economics 207a. *Three semester hours.* Mr. Van Tassel.

210a. ECONOMIC AND SOCIAL REFORM. Not offered, 1966-67.
The development of economic institutions by society in its attempt to solve basic economic problems by free enterprise or planning. Attention is given to the contemporary industrial organization of the American economy. *Three semester hours.*

211b. COMPARATIVE ECONOMIC SYSTEMS. Not offered, 1966-67.
An analysis of contemporary or recently industrialized economic systems such as capitalism, socialism, and fascism, followed by a consideration of these systems as currently or recently found to exist in specific nations. *Three semester hours.*

213a. MONEY AND BANKING THEORY.
The process of money creation and money flows; an analysis of the monetary and banking system, money and capital markets, and the role of financial intermediaries; analysis of monetary policy instruments and their effectiveness; competing objectives of monetary policy; relation of these objectives to fiscal policy, debt management, and economic growth. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Savage.

22a. LABOR ECONOMICS.
A survey of the nature of labor economics and labor problems, including the several approaches of organized workers and employers to these problems. *Three semester hours.* Mr. Melder.

22b. LABOR ECONOMICS.
Applications of economic analysis to wages, unemployment, and related issues. The approach of government to labor force problems, including industrial relations and social insurance. *Three semester hours.* Mr. Melder.

23b. PROBLEMS IN MONEY AND BANKING.
Central banks, particularly the Federal Reserve System; monetary standards; theories of foreign exchange; monetary policy in the United States. Prerequisite: Economics 13a or its equivalent. *Three semester hours.* Mr. Savage.

24. HISTORY OF ECONOMIC DOCTRINE.
After a quick survey of ancient writers, attention will be given to mercantilism and the doctrinal reaction from it as expressed by the Physiocrats and the Classical economists. *Three semester hours each semester.* Mr. Maxwell.

25b. PROBLEMS IN PUBLIC FINANCE.
The Employment Act of 1946 is discussed and methods by which it may be implemented. Other questions examined are: reform of the federal taxation, federal debt policy, the capital budget, federal budgetary procedure. Prerequisite: Economics 15a or its equivalent. *Three semester hours.* Mr. Maxwell.

252a. MARKETING RESEARCH.
Problems faced by business executives in marketing and the ways in which methods of scientific business research can be utilized for their solution. Prerequisites: Economics 11 and Economics 160, or the equivalent. *Three semester hours.* Mr. Balko.

26a. INDUSTRIAL ORGANIZATION AND GOVERNMENT CONTROL. Not offered, 1966-67.
Examination of the various forms of governmental regulation applied to our present industrial organization. Appraisal of existing governmental controls in specific industrial situations. *Three semester hours.*

26b. PROBLEMS IN INDUSTRIAL ORGANIZATION. Not offered, 1966-67.
Problems of market organization, behavior, and public policy. Conducted on a seminar basis. *Three semester hours.*

27. INTRODUCTION TO MATHEMATICAL ECONOMICS.
An introductory survey of the use of mathematical methods in economic analysis. Special attention is given to the mathematical framework of the theory of price determination. Prerequisite: consent of the instructor. *Three semester hours each semester.* Mr. Suh.

270b. MATHEMATICAL ECONOMICS. Not offered, 1966-67.
The course begins with the study of static micro economics including linear and nonlinear programming, and input-output analysis. Next will be considered topics in general equilibrium, dynamic micro-theory and growth models. Some knowledge of calculus and linear algebra are assumed in the course. *Three semester hours.* Mr. Suh.

275a. ORGANIZATION THEORY.
Basic principles of organization with reference to promotion, formal and informal organization, departmentalization, line-staff relationships, decentralization and centralization, communication and the organization's bargaining relations with other organizations. Prerequisites: Economics 11. *Three semester hours.* Mr. Bamford.

276b. **Managerial Economics.**
Economic concepts are analyzed and evaluated in terms of their applicability to the development of business policies. The criteria of usefulness are consistency of thought and measurability of the variables under consideration. Prerequisite: Economics 11. *Three semester hours.* Mr. Bamford.

28. **Senior Honors.**
Three semester hours each semester. Staff.

280b. **Junior Honors Seminar.**
Designed to assist honors candidates in integration of the field. Prerequisite for honors. *Three semester hours.* Staff.

29b. **Statistical Method.** Not offered, 1966-67.
The nature of statistics; statistical description; statistical inference; special topics. Special emphasis will be given to theoretical and observed frequency distributions, elements of probability theory, problems of sample design and interpretation, decision theory, time series, index numbers, and measures of association and correlation. *Three semester hours.* Mr. Nicholson.

290a. **Econometrics.**
The application of statistical inference to the verification of economic postulates and problems. Topics considered are: classical least-squares, autocorrelation, matrix algebra, simultaneous equation estimating techniques, factor analysis, input-output matrices and decision theory. The course is designed to acquaint the student with a wide range of statistical tools which are directly applicable to research problems in economics and business. *Three semester hours.* Mr. Bell.

290b. **Problems in Quantitative Economics.**
Study of the application of mathematical and statistical techniques to economic problems. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Bell.

311. **Seminar.**
Three semester hours. Staff.

39a. **Economic Theory.** Not offered, 1966-67.
Analysis of the theories of representative economists. Most attention is given to Marshall, Chamberlin, Keynes. *Three semester hours.*

300. Reading 30. Thesis	In Economic Growth.	Mr. Medler.
313. Reading 31. Thesis	In Money and Banking.	Mr. Savage.
322. Reading 32. Thesis	In Labor.	Mr. Melder.
324. Reading 33. Thesis	In Marketing.	Mr. Balko.
325. Reading 34. Thesis	In Public Finance and Fiscal Policy.	Mr. Maxwell.
326. Reading 35. Thesis	In Business Organization and Government Control of Industry.	Mr. Nicholson.

327. Reading 36. Thesis	In International Economics.	Mr. Van Tassel.
329. Reading 37. Thesis	In Statistical Methods.	Mr. Nicholson.
334. Reading 38. Thesis	In History of Economic Thought.	Mr. Maxwell.
339. Reading 320. Thesis	In Economic Theory.	Mr. Suh.

Education

DEPARTMENT FACULTY

Vernon Jones, Ph.D., *Professor of Educational Psychology, Department Chairman, 1965-1966.*
James M. Coffee, Ed.D., *Associate Professor of Education*
Joseph C. Bentley, Ph.D., *Assistant Professor of Education, Acting Department Chairman, 1966-67.*
Richard Gordon, Ph.D., *Assistant Professor of Education*
Karen C. Cohen, Ph.D., *Lecturer in Educational Psychology*
Theresa F. Cooney, M.Ed., *Lecturer in Education*
M. Evelyn Harriman, A.M. in Ed., *Lecturer in Education*

With the cooperation of Professor Reid of the Department of Romance Languages, Miss Hughes, Dean of Women, and visiting lecturers in special areas; Mrs. Ball, Instructor in Education and Guidance Counselor.

UNDERGRADUATE PROGRAM

The department encourages all students who may be interested in preparing for teaching to consult with some member of its staff as early in their careers at the University as convenient. The actual election of courses in education, however, should be postponed until the junior year. During the first two years, students should complete as many of the specific requirements for the degree of Bachelor of Arts as possible, and lay a broad foundation of scholarship in the subjects in which they wish to teach.

In conformity with its policy of emphasizing the importance of scholarly background in the preparation of teachers, the department offers its courses as electives, and not as an undergraduate major. This means that the students preparing to teach should elect their majors with careful attention to extensive preparation in areas in which they wish to teach.

Education courses at the undergraduate level are offered primarily with two purposes in mind: (1) to provide introductory instruction to students who plan to teach in public and private secondary schools, and who, in preparation for such teaching, plan a fifth year of study leading to the degree of Master of Arts in Education; and (2) to provide a program of courses in Education, building upon a strong academic background, for students who wish to enter teaching in the elementary schools upon receiving the B.A. degree.

For students desiring to enter elementary school teaching, a program has been developed whereby the election of at least 21 semester hours in education may be possible, including internship teaching in the first semester of the senior year. Since the amount of professional work in education forms so large a percentage of the program of study of such students in the junior and senior years, it is obvious that careful planning must be done throughout the college course to have the desired number of electives available for work in education in these last two years.

Seniors who stand in the highest third of their class may petition for permission to elect 300 level courses leading to secondary school teaching.

GRADUATE PROGRAM

The graduate program in education consists of two parts: a program leading to the degree of Master of Arts in Education, and another, leading to the degree of Doctor of Education.

Master of Arts in Education: For graduate students wishing to prepare for teaching and/or guidance in public or private secondary or elementary schools, the department offers a fifth-year program leading to the degree of Master of Arts in Education. The program includes additional work in the student's subject-matter field, courses and seminars in education and supervised internship teaching.

Admission Requirements: In addition to the general admission requirements to the Graduate School, a personal interview is usually required by the Department of Education. Since scholarships are usually not available for the first semester to students applying for the Master of Arts in Education as a terminal program, the department is liberal in its policy concerning the date when applications will be considered.

Programs Available: Four programs leading to the degree of Master of Arts in Education are available:

1. A full-time program for students with a bachelor's degree and strong academic background. Superior students may complete this program in one year. It includes appreciable advanced work in the academic field in which the student plans to teach, and internship teaching as well as graduate courses in education.
2. A program of part-time study for teachers in service.
3. A study-teach program for specially selected applicants involving alternate semesters of full-time study and paid employment as a teacher. This is a two-year program and the teaching is a part of the requirements of all students in this study-teach plan.
4. A study-teach program in cooperation with the Department of Romance Languages, involving instruction in beginning college courses. This is a two-year program in which the student typically receives a Teaching Assistant Scholarship involving remission of tuition and a cash stipend. In this program 20 hours per week are required in supervised teaching in the Department of Romance Languages. In light of the extensive internship teaching experience in this program, the number of courses in education may be reduced to equal that in the subject matter field. The assisting or teaching is a part of the requirements of all students in T.A.S. Program. As part of the study of Romance languages and literature, the departments look with favor on study abroad for at least one summer, but this is not a requirement.

Course Requirements. The student is expected to elect one of the following groups of studies as the field in which he wishes to teach:

(a) Mathematics and natural sciences.
(b) History, geography, and government.
(c) Ancient and modern foreign languages.
(d) English, alone or in combination with some related subject.

Prior to receiving the degree, the candidate must have completed in undergraduate and graduate study combined not less than five year-courses in one of the above groups, or in a combination of groups approved by the Department of Education. At least two semester-courses in a subject-matter field must be taken as a part of the study in residence for the advanced degree and must be passed with a grade of B— or better for graduate credit. In addition to the above requirement in the subject-matter field, eight semester-courses of graduate work in education will normally be required. The program of courses to meet these requirements must be approved in advance by the department. Changes in the proportion of education and subject-matter courses may be made by the department on the basis of the candidate's previous training. Work, additional to the above requirements, either in the subject-matter field or in education, or both, may be required if this seems necessary for the adequate preparation of the candidate.

Internship Teaching. The department provides opportunities for internship teaching under supervision for all graduate students majoring in education. For graduate students of the department who have not had teaching experience, satisfactory work in internship teaching is a requirement for the degree of Master of Arts in Education.

Thesis or Additional Study in Lieu of Thesis. All candidates for the degree of Master of Arts in Education must choose one of the following plans:

(a) Prepare an acceptable thesis.

(b) Elect, in lieu of thesis, two additional semester courses in subject-matter fields (making a total of at least four-semester courses in subject-matter area).

(c) Elect, in lieu of thesis, a seminar in which intensive work will be required in preparing and presenting reports before fellow graduate students and a member of the staff.

Final oral examination. The passing of a final oral examination will be required of all candidates.

Doctor of Education: The program for the degree of Doctor of Education was established in 1962 with special emphases on educational psychology, guidance and counseling. The requirements for this degree will closely parallel the requirements for the Doctor of Philosophy degree, as outlined in the catalog section on the Graduate School. Applicants for admission to the program will be expected to give evidence of high scholarly achievement, including results of the Graduate Record Examination. In special cases, foreign students may be excused from the Graduate Record Examination requirement.

COURSES

201a. Educational Psychology: Child Growth and Development.
Principles of child development, with special emphasis upon maturation, learning and personality development in the elementary school years. *Three semester hours.*
Mr. Bentley.

210b. Psychological Approach to Citizenship Development.
A study and evaluation of the theoretical formulations and experimental evidence on

the problem of values as they relate to character and citizenship development among children and adolescents. Attention will be given both to activities in the schools and to other institutions and agencies in the community as they relate to values and conduct of youth. *Three semester hours.* Mr. Jones.

215a. INTERNSHIP TEACHING IN THE ELEMENTARY SCHOOL.
An intensive period of observation and practice in teaching under supervision in regularly organized classes in elementary school. Each student is assigned to a supervising teacher, under whom he or she works for 180 hours during the semester. The first week of this period is normally devoted to observation; the remainder of the time to teaching, under supervision. Lesson planning, pupil evaluation, and supervision of pupils in non-class activities are part of the requirements of each student. Admission on consent of the Department. *Three semester hours.*
Mr. Jones, Mr. Gordon, Mrs. Cooney, Mrs. Harriman and Supervising Teachers.

216a. SEMINAR ON INTERNSHIP TEACHING (Accompanying 215a).
Education 215a and 216a should be taken simultaneously. *Three semester hours.*
Mr. Gordon and Mrs. Cooney.

27b. PRINCIPLES OF SCHOOL AND RECREATIONAL LEADERSHIP.
The basic concepts and techniques of educational and recreational leadership. Lectures, readings, discussions, and field work. Admission on consent of the instructor. *Three semester hours.* Miss Hughes.

263a. METHODS AND MATERIALS IN TEACHING IN THE ELEMENTARY SCHOOL.
Methods and materials in the teaching of the language arts, in the middle grades, with special reference to reading. Particular emphasis will be given to provision for individual differences in teaching, and to the development of independent study skills. Field trips to selected schools will be arranged. Admission on consent of the Department. *Three semester hours.* Mr. Gordon and Specialists.

260b. CURRICULUM DEVELOPMENT IN ELEMENTARY EDUCATION.
A study of the most essential materials and methods in elementary school instruction. Special attention will be given to the methods of teaching and learning in the social studies and mathematics, with brief units on the methods of cooperating most effectively with special teachers in the arts. Lectures and demonstrations by visiting specialists will be provided on particular topics, and field trips will be arranged for classroom demonstrations of certain principles and procedures. Admission on consent of the Department. *Three semester hours.* Mr. Gordon and Specialists.

270. (ROMANCE LANGUAGES 270) THE TEACHING OF ROMANCE LANGUAGES.
A practicum course for Teaching Assistant Scholars serving as first-year Interns in the Department of Romance Languages. This course will include a weekly lecture and readings, to provide a basis in the theory of applied linguistics; directed teaching in language courses; and a semi-monthly seminar for discussion of the relations between theory and practice. *Three semester hours each semester.* Mr. Reid, Mrs. Walter and Staff.

271. (ROMANCE LANGUAGES 271) THE TEACHING OF ROMANCE LANGUAGES—ADVANCED.
A continuation of course 270 for second-year Interns. *Three semester hours each semester.*
Mr. Reid, Mrs. Walter and Staff.

276b. Seminar: Educating the Culturally Disadvantaged.
Three semester hours. Mr. Bentley.

290b. Philosophy of Education.
The aims, processes and materials of education with special reference to the influence of philosophical ideas on educational problems. *Three semester hours.* Mr. Beck.

301a. Educational Psychology: Adolescent Growth and Development.
Principles of learning and of personality development at the adolescent level. Major emphasis will be upon implications of normal adolescent growth and development for teaching and guidance. *Three semester hours.* Mr. Jones.

303b. Curriculum Development in Secondary Education.
The basic objectives, issues, principles and procedures of curriculum organization and development in secondary schools, including the organization of learning experiences in reference to developmental and subject-matter sequences. Admission on consent of the Department. *Three semester hours.* Mr. Gordon.

304b. Educational Sociology.
A study of social phenomena and their relationships to education. *Three semester hours.* Mr. Bentley.

307a. Personality Development in Teaching and Counseling.
The role of personality theory and development in counseling and education with emphasis upon those theories which relate to the counseling process. *Three semester hours.* Mr. Bentley.

307b. Personality Development in Teaching and Counseling.
Psychological, social and cultural bases of personality development as they relate to teaching and counseling. *Three semester hours.* Mr. Bentley.

308a. Methods and Materials in Secondary Education.
Methods and techniques used by the teacher in junior and senior high school teaching, and a survey of materials available. Admission on consent of the Department. *Three semester hours.* Mr. Gordon.

309b. Social Learning in Relation to Teaching and Counseling.
The purpose of this course is to consider concepts of learning which contribute to an understanding of the development of social behavior. Principles of learning and teaching from the fields of social psychology and sociology will be studied within the context of the social environment. *Three semester hours.* Mr. Coffee.

311a. Principles, Practices, and Organization of Guidance.
A survey of guidance and personnel work. Principles bearing upon guidance and student personnel practices will be developed. Aspects of related fields will be reviewed sufficiently to indicate the scope and content of guidance and personnel work. The problem of organizing and administering a guidance program will form an important part of this course. *Three semester hours.* Mr. Coffee.

312a. Guidance: Counseling.
Emphasis in this course will be upon the theory and methodology of counseling and upon the management of typical counseling problems. The diagnosis and referral of be-

havior disorders and related personality maladjustments will be considered. Case material will be presented and analyzed. (311a must be taken simultaneously or have been taken previously.) *Three semester hours.* Mr. Coffee.

312b. GUIDANCE: OCCUPATIONAL INFORMATION AND PLACEMENT.
The first part of this course will contain instruction and training in the use of occupational information in vocational guidance along with a consideration of the psychological and sociological factors related to occupational choice and job satisfaction. The second part will emphasize the organization of the placement service. *Three semester hours.* Mr. Coffee and Mrs. Ball.

314a. TESTS AND EVALUATION.
The methods and problems involved in the evaluation of abilities, interests and achievement of children and youth. Attention will be given both to standardized instruments and to teacher-made tests of achievement. *Three semester hours.* Mr. Jones.

314b. TESTS AND EVALUATION: ADVANCED PROBLEMS.
The measurement and evaluation of aptitudes, attitudes, and personality with attention to the use of such measures in teaching and counseling. *Three semester hours.* Mr. Jones.

315a. INTERNSHIP TEACHING IN THE SECONDARY SCHOOL.
An intensive period of observation and teaching in the field or fields in which the student plans to teach in secondary school. Individual supervision is given by the department and by critic teachers in cooperating schools. Admission on consent of the Department. *Three semester hours.* Mr. Jones, Mr. Gordon and Supervising Teachers.

316a. SEMINAR IN INTERNSHIP TEACHING IN SECONDARY SCHOOL (Accompanying 315a).
Education 315a and 316a should be taken simultaneously. *Three semester hours.*
Mr. Gordon.

318a. INDIVIDUAL PSYCHOLOGICAL ASSESSMENT IN COUNSELING.
Three semester hours. Mr. Bentley and Mrs. Cohen.

319a. STATISTICAL METHODS IN EDUCATIONAL EVALUATION AND RESEARCH, I.
Three semester hours. Mr. Jones.

319b. STATISTICAL METHODS IN EDUCATIONAL EVALUATION AND RESEARCH, II.
Three semester hours. Offered 1966-67. Mr. Jones.

320b. RESEARCH DESIGN AND STATISTICS Not offered, 1966-67.
Three semester hours. Offered 1965-66. Mr. Jones and Mrs. Cohen.

321a. EDUCATIONAL RESEARCH DESIGN AND METHODOLOGY, I.
Three semester hours. Mrs. Cohen.

321b. EDUCATIONAL RESEARCH DESIGN AND METHODOLOGY, II.
Prerequisite: 321a or its equivalent. *Three semester hours.* Mrs. Cohen.

322b. PRACTICUM IN GUIDANCE.
Three semester hours. Mr. Coffee.

325. ADVANCED PRACTICUM IN GUIDANCE AND COUNSELING.
Three semester hours each semester. Mr. Coffee.

335a. ADVANCED THEORIES OF HUMAN LEARNING.
Three semester hours. Mr. Bentley.

340. Doctoral Seminar.
Three semester hours each semester. Staff.

350. Research in Education.
Individual direction of students in their research projects. *Three semester hours each semester.* Staff.

380b. Departmental Seminar on Current Problems.
Six semester hours. Staff.

GRADUATE READINGS AND THESIS COURSES

38. } Directed Readings in Educational Psychology.
381. } Thesis. Staff.

39. } Directed Readings in Counseling.
391. } Thesis. Staff.

English

DEPARTMENT FACULTY

Karl O. E. Anderson, Ph.D., *Professor of English, Department Chairman*
James F. Beard, Jr., Ph.D., *Professor of English*
Charles S. Blinderman, Ph.D., *Associate Professor of English*
William H. Carter, Jr., Ph.D., *Associate Professor of English*
Neil R. Schroeder, Ph.D., *Associate Professor of English*
Stanley Sultan, Ph.D., *Associate Professor of English*
Jessie C. Cunningham, A.M., *Assistant Professor of English*
Serena S. Hilsinger, Ph.D., *Assistant Professor of English*
Arthur H. Martin, A.B., *Instructor in English*

UNDERGRADUATE PROGRAM

Undergraduates who choose to meet the distribution requirement in literature may take any English course with the exception of English 12a, 16a, 17b, and 19a. English 10a, Introduction to Literature, is a prerequisite for any other literature course in the English Department.

A major in English consists of a minimum of eight semester-courses in English beyond the level of English 10a plus six semester-courses in related areas, as follows:

1. English 13a and either English 14 or 15. Normally these courses should not be taken by the English major in his senior year.
2. Four semester-courses in English on the 200 level.
3. Related courses: two semesters in history, to be selected from the following courses: History 10, 12, 22b, and 230; two semesters in philosophy beyond Philosophy 11; and two other semester-courses approved by the English Department.
4. English 12a and 19a cannot be counted towards the requirement for an English major.

To make sure that students develop some historical perspective and an awareness of the range and variety of English and American literature, all English majors (beginning with the Class of 1968) must include in their programs at least:

a. three semester-courses dealing with English literature written before 1700:
English 15a: English Drama
201b: Chaucer
202b: Medieval Literature
204: Milton and the Seventeenth Century
213: Shakespeare

b. three semester-courses dealing with English and American literature written from 1700 to 1900:
English 14: English Novel
111: American Literature
205: Eighteenth Century
210: Victorian Literature
212a: American Literary Renaissance
217a: Literature of the Romantic Period

Several English Seminars also meet this requirement, depending on the subjects. Since the topics for seminars vary from year to year, the seminars fulfilling either half of this requirement cannot be listed here by name. Students should note that all year-courses in English are divisible.

The Honors Program in English, which offers an opportunity for extensive independent work during the junior and senior years, is open to qualified students upon application to the department.

Students who expect to do graduate work in English are advised to acquire a reading knowledge of French, German, and Latin.

GRADUATE PROGRAM

The University offers a program leading to the Master of Arts degree in English. A limited number of scholarships providing tuition remission are available for superior students. The department also offers several teaching assistantships, involving half-time teaching and half-time study, with a stipend up to $2000 plus the remission of tuition.

For the Master of Arts, the student must satisfactorily complete at least 30 semester hours of work, including English 300a (Introduction to Graduate Studies), English 250b (English Language), and at least one seminar. He must also write an acceptable master's thesis (which may count up to 6 of the required 30 semester hours), and he must pass a written Foreign Language Examination (in Greek, Latin, French, German, Italian, Russian, Spanish, or another foreign language approved by the English Department).

COURSES

10a. INTRODUCTION TO LITERATURE.

This course will be taught in sections. All the sections will deal with the problems common to all the literary genres—such as the handling of diction, imagery, point of view, tone, and structure; but the reading assignments will vary, each section focusing on some concept or theme. Students will be permitted to make their own choices as far as possible. *Three semester hours.* Staff.

12a. SPEECH.

A fundamental course in speech, including training and practice in voice production, diction, articulation, and the basic types of speech. Drill sessions and recordings help the student recognize and correct his speech deficiencies. Practice in public speaking includes practical experience in the most common types of speeches. Open to freshmen. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Schroeder.

13a. INTRODUCTION TO POETRY.
A course introducing the student to a variety of critical approaches to poetry and affording extensive experience in reading, discussing and writing about individual poems. Attention is given to as many as possible of the chief kinds, functions and values of poetry. *Three semester hours.* Mr. Carter, Mrs. Hilsinger.

14. ENGLISH NOVEL.
A study of the English novel from its beginning to the end of the nineteenth century. The first semester includes Defoe, Richardson, Fielding, Smollett, Sterne, Jane Austen, and three or four minor novelists. The second semester considers Scott, Thackeray, Dickens, George Eliot, James, Hardy, Conrad, and two or three minor novelists. Some emphasis is placed on the development of the novel as a literary form. *Three semester hours each semester.* Mrs. Cunningham.

15. ENGLISH DRAMA.
A course in theatrical techniques and the literature of the major periods of drama in the English language. The first semester covers the religious drama of the Middle Ages and the drama of Tudor, Stuart, and Restoration England, including plays by Marlowe, Shakespeare, Jonson, Beaumont and Fletcher, Dryden, Congreve and Wycherley. The second semester covers eighteenth and nineteenth century English drama and the modern drama of England, Ireland and the United States. Included are plays by Sheridan, Goldsmith, Wilde, Shaw, Synge, Yeats, O'Casey and O'Neill. *Three semester hours each semester.* First semester: Mr. Schroeder.
Second semester: Mr. Sultan.

16a. CREATIVE WRITING.
A course designed to cultivate and guide student work in the short story, the lyric poem, and the informal essay. Class meetings deal largely with important aspects of the art of fiction; published literary works and student manuscripts are discussed. Prerequisite: a one-semester course in literature, which may be taken concurrently. *Three semester hours.* Mr. Martin.

17b. CREATIVE WRITING: SECOND COURSE.
Open to students who have taken English 16a and to other students interested in writing verse. Prerequisite the same as for English 16a. *Three semester hours.*
Mr. Sultan.

19a. EXPOSITORY WRITING.
This course is designed to help students improve their expository writing through the study and application of rhetorical methods. Diction, sentence structure, paragraph integrity, theme organization, logic, semantics, persuasion, the relationship of idea to expression and of expression to audience are among the matters analyzed. *Three semester hours.* Staff.

111. AMERICAN LITERATURE.
Through study of representative masterworks, the course traces the main currents of American literature from Puritan times to the present. Authors read during the first se-

mester include Sewall, Edwards, Franklin, Cooper, Poe, Hawthorne, Thoreau, Emerson, Melville and Whitman; during the second semester, Twain, Howells, Dickinson, Adams, Crane, James, Frost, Eliot, Faulkner and Hemingway. *Three semester hours each semester.* Mr. Beard.

112b. SEMINAR: ELIZABETHAN NON-DRAMATIC LITERATURE.
Elizabethan prose and poetry, excluding drama, will be considered in their cultural, intellectual, and literary context. Special attention will be devoted to the works of Sidney, Spenser, Shakespeare, Jonson and Donne; but many minor figures (Wyatt, Surrey, Nashe, Lyly, Greene, etc.) will also be considered. Offered at the discretion of the department. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Martin.

127b. MODERN CONTINENTAL DRAMA.
A survey of the drama of continental Europe, excluding England, from Ibsen to the drama of the absurd. Special emphasis will be given to the major figures, including Ibsen, Strindberg, Chekhov, Pirandello and Brecht. Offered in alternate years. *Three semester hours.* Mr. Schroeder.

128. THEATRE IN WESTERN CIVILIZATION. Not offered, 1966-67.
A history of Western theatre from classical Greece to the present which includes a study of the origins of the theatre, the origin and development of the major theatrical genres (drama, mime, ballet, opera, etc.), the emergence of the national theatre of Western civilization, the history of theatrical methods and techniques (acting, theatre architecture, scene design, production methods, etc.), and the aesthetic, historical, philosophical, and sociological significance of theatre through the ages. The first semester will be a study of Western theatre through the Renaissance; the second semester will cover theatre from the late seventeenth century to the present. Offered at the discretion of the department. *Three semester hours each semester.* Mr. Schroeder.

143b. MODERN BRITISH FICTION.
The course deals primarily with the work of four British writers of fiction during the twentieth century: Joyce, Lawrence. Woolf and Durrell. *Three semester hours.* Mrs. Hilsinger.

144a. CONTEMPORARY AMERICAN FICTION.
A critical introduction to the best American fiction since about 1900, with emphasis on its aesthetic values, sociological insights, and philosophical implications. Authors read include Dreiser, James, Anderson, Fitzgerald, Hemingway, Wolfe, Faulkner and Mailer. *Three semester hours.* Mr. Beard.

155b. JUNIOR HONORS SEMINAR.
Restricted to juniors who are candidates for honors in English. The purpose of the seminar is to prepare the student for the advanced independent study of literature. It comprises such subjects as the definition of genres, the nature of metaphor, alternative critical approaches to literature and the editing of texts. *Three semester hours.* Mrs. Hilsinger.

201b. CHAUCER.
After a careful study of the Prologue to the *Canterbury Tales* to acquaint the student with the essentials of Middle English vocabulary, grammar and scansion, most of the

Canterbury Tales and all of *Troilus and Cressida* are read more rapidly. The emphasis throughout is on Chaucer's literary skill and breadth of vision. Offered in alternate years. *Three semester hours each semester.* Mr. Anderson.

202b. MEDIEVAL LITERATURE. Not offered, 1966-67.
A study of the literature of Western Europe before 1500. The works read include epics such as *Beowulf, The Song of Roland, The Nibelungenlied,* and the *Njal's Saga;* historical writings and folk tales important in the development of the Arthur story; romances such as *Perceval, Tristan and Isolde,* and *Gawain and the Green Knight;* Dante's *Divine Comedy: Inferno;* selections from Chaucer's *Canterbury Tales;* popular ballads and other short poems, secular and religious. Offered in alternate years. *Three semester hours.* Mr. Anderson.

203a. SEMINAR: THE METAPHYSICAL POETS.
An intensive reading of the English metaphysical poets of the seventeenth century, with primary emphasis on Donne, Herbert, Crashaw, Marvell, and Vaughan. Offered at the discretion of the department. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Carter.

204. MILTON AND THE SEVENTEENTH CENTURY. Not offered, 1966-67.
The first semester is devoted to a study of seventeenth century English literature exclusive of Milton and the Restoration Drama; that is, metaphysical poets (Donne, Herbert, Vaughan); the seventeenth century lyric (Jonson, Herrick, Crashaw, Marvell); prose works by Bacon, Burton, Browne, Walton, Bunyan, Pepys and Evelyn; and in general, the rise of neo-classicism (Jonson, Hobbes, Dryden). The second semester considers in some detail the works of Milton and the Restoration Drama (Dryden, Etherege, Wycherley, Congreve, Farquhar). Offered in alternate years. *Three semester hours each semester.* Mr. Carter.

205. EIGHTEENTH CENTURY.
During the first semester, prose works such as Defoe's *Moll Flanders* and Swift's *Gulliver's Travels,* plays such as Gay's *Beggar's Opera* and Lillo's *London Merchant,* and the major poems of Pope and Swift are considered. During the second semester, prose works by Boswell and Johnson; novels by Richardson, Fielding, Smollet, Sterne; plays by Fielding, Goldsmith, Sheridan; and poetry by Thomson, Collins, Gray, Burns and Blake are studied. Offered in alternate years. *Three semester hours each semester.* Mr. Carter.

206a. SEMINAR: SPECIAL STUDIES IN RENAISSANCE DRAMA.
A seminar devoted to the intensive study of a small group of dramatists or a special dramatic problem of the Renaissance. Enrollment limited to graduate students and advanced undergraduates who are capable of independent work. Prerequisite: consent of the instructor.

TOPIC FOR 1966-67:

First semester: Christopher Marlowe and Ben Jonson.

This seminar will be concerned with intensive study and discussion of selected works by Marlowe and Jonson, with emphasis on the major plays. *Three semester hours.*
Mr. Schroeder.

210. VICTORIAN LITERATURE.
A survey of Victorian literature through the major movements and figures of the age. In the first semester, Carlyle, Macauley, Mill and Newman are studied as representative spokesmen of prevailing ideological movements, such as Transcendentalism, Utilitarianism, Anglo-Catholicism; Tennyson and Browning are the major poets studied. In the second semester, the movements include Darwinism, Aestheticism and Imperialism; Huxley, Arnold, Pater, Ruskin, Wilde and Hardy are among the authors read. Offered in alternate years. *Three semester hours each semester.* Mr. Blinderman.

212a. AMERICAN LITERARY RENAISSANCE.
This course will explore characteristic writings of Emerson, Thoreau, Hawthorne, Melville, and Whitman; consider their personal and literary interrelations; and seek to evaluate their artistic and cultural influences in the larger context of American society. *Three semester hours.* Mr. Beard.

213. SHAKESPEARE.
Approximately twenty plays, with supplementary critical essays, are read through the year as a basis for a study of Shakespeare's development as a dramatist and his changing attitude toward life. The second semester is devoted mainly to a careful analysis of *Hamlet, Othello, Lear, Macbeth* and *Antony and Cleopatra. Three semester hours each semester.* Mr. Anderson.

217a. LITERATURE OF THE ROMANTIC PERIOD.
The course includes reading of prose works (essays and a gothic novel), study of eighteenth century predecessors of the Romantic Movement, and exposure to background information; emphasis is placed upon the major poetry of the major Romantic poets: Blake, Coleridge, Wordsworth, Byron, Shelley, and Keats. Offered in alternate years. *Three semester hours.* Mr. Blinderman.

218b. SEMINAR: WILLIAM BLAKE.
An analysis of the poems and of a selection of the Prophetic Books of Blake, including some consideration of Blake as graphic artist. Offered at the discretion of the department. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Carter.

219a. SEMINAR: AUSTEN AND JAMES.
This seminar will be devoted to a study of the novel of manners as a reflection of society and as a work of art. Emphasis will be placed on relationships between the two authors in their handling of content, form, and method. Offered at the discretion of the department. Prerequisite: consent of the instructor. *Three semester hours.*
Mrs. Cunningham.

222b. SEMINAR: MODERN POETRY.
A course in English poetry during the forty-year period from the First World War to the death of Dylan Thomas and Wallace Stevens, with brief consideration of the precursors of the period. Yeats, Pound, Eliot, Auden, Frost, Stevens and Thomas are the principal poets studied. Offered in alternate years. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Sultan.

225b. TWENTIETH CENTURY AMERICAN LITERATURE.
The course will include readings and discussions of a significant group of twentieth century American writers, O'Neill, Eliot, Robinson, Frost, Hemingway, Faulkner, and

Stevens, as artists and as representatives of tendencies and influences in American civilization. *Three semester hours.* Mr. Beard.

231a. THE IRISH LITERARY REVIVAL.
A course in the inception, development and effect of the literary movement during the end of the last century and first decades of this one that created an Irish literature in English. Writers studied include Yeats, Joyce, Synge and O'Casey. The cultural, historical and political backgrounds of Anglo-Irish literature are also taken up. Offered at the discretion of the department. *Three semester hours.* Mr. Sultan.

235a. SEMINAR: BLOOMSBURY GROUP.
This seminar will consider the aesthetic and social theories expressed in the novels of Virginia Woolf and E. M. Forster and in the essays of these and other members of the Bloomsbury Circle. Offered at the discretion of the department. Prerequisite: consent of the instructor. *Three semester hours.* Mrs. Hilsinger.

245b. MODERN CONTINENTAL FICTION.
Selected masterpieces by modern European novelists are studied closely in English translation, with attention to their philosophical, moral, social, political and psychological insights as well as to their literary forms. Writers considered include Flaubert, Turgenev, Tolstoy, Dostoyevsky, Gide, Proust, Mann, Kafka and Camus. Students are encouraged to read in the original languages when possible. Offered in alternate years. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Beard.

246b. INTRODUCTION TO LITERARY CRITICISM.
This course involves the discussion of a selection of critics, from Aristotle to the present, who have been particularly influential in English and American literature. Offered at the discretion of the department. *Three semester hours.* Mr. Carter.

250b. ENGLISH LANGUAGE
A one-semester, introductory, survey course in the history and nature of the English language. The first part will be devoted to a study of metalinguistics (the relationship between thought and language, the relationship between reality and language), of the origin of the spoken language and the alphabet, and of the Indo-European family of languages. The major part of the semester will focus on the origin and development of English: military and linguistic invasions of England, morphological and other changes in the language, lexicography, grammars of English, usage, etymology. Concluding part of the semester will consider the nature of contemporary English (including jargon, slang, different styles) and semantics. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Blinderman.

300a. INTRODUCTION TO GRADUATE STUDIES.
This course is devoted to an intensive general study of the three principal areas in the discipline—bibliography and textual analysis, literary history, and literary criticism—and to the relationships among them. In the study of literary criticism, alternative theoretical approaches and applications of them are examined. *Three semester hours.* Mr. Sultan.

GRADUATE READING AND THESIS COURSES

31. READING COURSE.
310. MASTER'S THESIS. Staff.

Fine Arts

DEPARTMENT FACULTY

Samuel P. Cowardin, III, Ph.D., *Associate Professor of Fine Arts, Department Chairman*
Sante Graziani, M.F.A., *Associate Professor (affiliate) of Fine Arts*
John T. Murphey, B.S. in Ed., *Assistant Professor of Fine Arts*

UNDERGRADUATE PROGRAM

The department offers a selection of courses designed to foster understanding and sensitivity in the visual arts through direct contact with the materials of art or the study of artistic achievement in a variety of areas and historical periods. The major in fine arts is offered in conjunction with the School of the Worcester Art Museum. All advanced studio courses at the museum are designated as Fine Arts 199 below. They are described in the catalog of the School of the Worcester Art Museum. The major comprises at least thirty-six credit hours of studio work at the museum, plus Fine Arts 11 and six additional hours chosen from one or more of the following areas: European civilization, history, music, philosophy.

Every candidate for admission who plans to major in fine arts must submit with his application form a portfolio of at least fifteen pieces of representative art work directly to the Registrar of the School of the Worcester Art Museum. Each piece should be clearly marked with the candidate's name and home address.

COURSES

11. Introduction to Western Art.

Lectures during the first four weeks deal with general topics such as design principles and technical procedures. The remainder of the course treats significant works of architecture, sculpture, and painting in the light of their times. Open to freshmen. First semester prerequisite to the second. *Three semester hours each semester.* Mr. Cowardin.

12b. Survey of Western Painting.

General problems of pictorial expression are treated as well as the historical aspects of style. May not be counted in addition to the second semester of Fine Arts 11. Limited to freshmen and sophomores. *Three semester hours.* Mr. Cowardin.

14a. Introduction to the Visual Arts.

Each of the visual arts is treated in a non-historical way, with special regard for the physical nature of the medium and its expressive potential. May not be counted in addition to the first semester of Fine Arts 11. Limited to freshmen and sophomores. *Three semester hours.* Mr. Cowardin.

15. Art of the Renaissance in Italy.

Prerequisite: at least one semester course in art history. Offered in alternate years. *Three semester hours each semester.* Mr. Cowardin.

18. Art of the Modern World.

Painting, sculpture, and architecture of the nineteenth and twentieth centuries, with special emphasis on the origins and evolution of the modern esthetic attitude and its progress to date. *Three semester hours each semester.* Mr. Murphey.

19a. Introduction to Oriental Art: The Ancient Near East and India.

Not offered, 1966-67.

Prerequisite: at least one semester course in art history. Offered in alternate years. *Three semester hours.* Mr. Cowardin.

19b. INTRODUCTION TO ORIENTAL ART: CHINA AND JAPAN. Not offered, 1966-67.
Prerequisite: at least one semester course in art history. Offered in alternate years. *Three semester hours.* Mr. Cowardin.

100. ART WORKSHOP.
A studio course on campus which puts the student in direct contact with the materials, techniques, and fascinations of producing a work of art. Designed especially for the non-major, its purpose is to intensify awareness in the variety and subtleties of the esthetic experience through direct activity in esthetic problem solving. Uses a variety of media and approaches. In special circumstances may be counted toward the major in lieu of Fine Arts 111. Six studio hours per week. Open to freshmen. Indivisible course. *Three semester hours.* Mr. Murphey.

111. BASIC PAINTING.
The fundamental studio course given at the School of the Worcester Art Museum. Open to freshmen who plan to major in fine arts. Indivisible course. *Three semester hours each semester.* Mr. Graziani and Staff.

199. ADVANCED PAINTING AND DESIGN.
General designation for all courses at the School of the Worcester Art Museum above the elementary level. Ordinarily open only to majors. Consult the department for semester hours. Staff of the Museum School.

Geography

DEPARTMENT FACULTY

Saul B. Cohen, Ph.D., *Professor of Geography; Director of Graduate School of Geography*
Raymond E. Murphy, Ph.D., *Professor of Economic Geography; Editor of Economic Geography*
Henry J. Warman, Ph.D., *Professor of Geography*
Robert W. Kates, Ph.D., *Associate Professor of Geography*
Rodman E. Snead, Ph.D., *Associate Professor of Geography*
Jeremy Anderson, Ph.D., *Assistant Professor of Geography*
Martyn J. Bowden, M.A., *Assistant Professor of Geography*
George F. McCleary, Jr., M.A., *Assistant Professor of Geography*
Terrence W. Beed, Ph.D., *Visiting Assistant Professor of Geography*

When the Graduate School of Geography was organized in 1921, Clark became the second university in the United States to establish a separate graduate program in geography. At the present time, advanced training is provided leading to the Master's and Doctor's degrees. In addition, the Staff offers a series of courses for undergraduates within the liberal program of the University. Clark is a center of geographical training and research in the United States, and its various offerings are geared to provide a maximum of individual attention through student-teacher dialogue.

UNDERGRADUATE PROGRAM

Majors in geography are required to take seven year-courses, or the equivalent, in geography and related fields. At least four, and not more than five, of these courses must be in geography.

Geography 10, Elements of Geography, or Geography 11a, Approaches to Geography and Geography 11b, Map Interpretation and Reading are usually taken in the freshman year, or as early as possible after the selection of geography as a major. One or two of the following courses may be taken during the sophomore year: Geography 150b, Geography 160a, Geography 191. Juniors and seniors are eligible for 200-level courses.

Subjects in Group A (Science and Mathematics) strongly recommended by the staff are mathematics, geology and biology. Recommended fields listed under Group B (Social Science) include history, economics, international relations, sociology and anthropology.

An Honors Program in geography offers opportunity for independent study and research. Information regarding the program can be obtained from the departmental office.

THE GRADUATE SCHOOL OF GEOGRAPHY

Master of Arts: In order to enter the M.A. program without condition, a student must give evidence of some background in the elements of geography, in economic geography and in cartography. Courses taken to remedy any deficiencies will not count as part of the regular M.A. program.

The M.A. program in Geography is a two-year program. Students are required to take Geography 399, the Field Course/Field Camp, and two semester seminars. A total of eight year-course equivalents are required, of which one to two may be in related disciplines, including reading courses. A student may elect a single or double thesis course as part of his program. For those M.A. candidates interested in Geography and its Pre-College teaching, a single semester course in Internship Teaching in the Secondary School or its equivalent is recommended.

Comprehensive examinations for the M.A. cover five fields: (1) philosophy and methodology of geography, (2) a physical geography field, (3) a regional geography field, and (4) and (5) two other systematic fields approved by the staff. It is expected that the examination for these five fields shall be in writing and extend over five hours. In addition, a 40 minute oral performance on one of these five fields shall be taken, the field to be the major one in which the thesis is written. The comprehensive examinations will be offered twice during the academic year, at the end of September and at the end of February.

By April 1 of the year in which the candidate expects to receive his degree, he must submit an acceptable draft of the thesis to his adviser; this will then be circulated among the staff members for approval. After all revisions have been made and the draft approved by the adviser, the thesis is typed in final form. University requirements concerning the thesis can be found in the section on the Graduate School.

Doctor of Philosophy: Normally, to enter the Ph.D. program, a student must have completed all requirements for a master's degree in geography at Clark or at another institution. Where there are obvious deficiencies, all or part of the M.A. comprehensive examination and a paper of thesis length and quality may be required of those entering with M.A.'s from other institutions. Deficiencies which are exposed as a result of this examination are expected to be remedied by course and written work taken during the first year of doctoral residence.

A doctoral candidate must fulfill a two-year residence requirement if entering with an M.A. from another institution and a one-year residence requirement if he has fulfilled the Clark two-year M.A. requirement. The candidate normally elects four courses each semester, including a minimum of two seminars. The candidate must pass an examination in French, German, Russian, or Spanish, preferably in his first year at Clark. The department may set an additional language or other requirement as the student's field or research may demand. The language and alternative requirements must be fulfilled before the preliminary examination is scheduled.

The candidate offers three fields in his preliminary examination. The major is the field in which he expects to write his dissertation. The other two minor fields shall be chosen from those which have particular bearing on the major field and with the written approval of the department.

Defense of the dissertation topic and written outline shall be made orally in the presence of the departmental faculty and any time after the first semester of residence with the consent of the staff. A student who has successfully passed his preliminary Ph.D. examinations must file for candidacy within one year after his dissertation topic has been approved and accepted.

By March 1 of the year in which the candidate expects to receive his degree, he must submit an acceptable dissertation draft to his major professor. If this is approved, it will be circulated among other staff members for their comments and a date set for its defense. If the defense is adequate, and after any necessary revisions have been approved by the major professor, the dissertation is typed in final form. Two carbon copies must be delivered to the departmental office at least four weeks before the date of commencement. This is in addition to the ribbon copy that must be delivered to the Registrar. All dissertations are microfilmed and, for this reason, it is required that illustrations be in black and white, in no case requiring more than a page.

Some teaching or research experience at Clark (or its equivalent at another institution) is prerequisite to the Doctor's degree.

Distinctive Features and Specialization

The Clark Graduate School of Geography has the substantial advantage of being centrally situated within New England, a region of varied rural and urban landscapes and renowned cultural centers.

The School has become a traditional "port of call" for professors of geography from this and other countries, and the graduate students have opportunities to visit with them as well as to attend the lectures which are arranged.

Graduate students are assigned carrels in the Geography Workroom. The Workroom and other sections of the Geography Building contain specialized equipment and research facilities for the use of students and staff. The Libbey Library of the Geography Building serves for general conferences and the reception of visiting lecturers. Workroom and classroom fees, totaling $10 per semester, are payable on November 1 and March 1.

A feature of the Graduate School of Geography is a field course/camp program which includes studies of land utilization, geomorphology, meteorology, resources and urban geography, with special training in mapping and other field techniques.

Publications: A professional magazine, *Economic Geography,* is edited by a staff member. Started at Clark University in 1925, it is the only journal published in English that specializes in economic and urban geography. The magazine has a world-wide distribution, with a total circulation of 3,800.

The graduate students, through the years, have maintained the Clark University Geographical Society. It publishes *The Monadnock,* a booklet which keeps geography alumni in touch with each other and with current activities in the school.

COURSES

10. ELEMENTS OF GEOGRAPHY. Not offered, 1966-67.
Physical and cultural phases of geography and application of some principles of geography to selected regions. Open to freshmen and sophomores. Juniors and seniors admitted only by consent of the instructor. Indivisible course. *Three semester hours each semester.*

11a. APPROACHES TO GEOGRAPHY.
Offered as a general framework for understanding geography for those who have a curiosity about the field. The history and philosophy of the field and the various approaches to geographic research that are employed in its major sub-fields, the latter to be treated partly in the form of case studies. For freshmen and sophomores, juniors and seniors admitted by consent of the instructor. *Three semester hours.*
Mr. Bowden, Coordinator, and Staff.

11b. MAP APPRECIATION AND READING.
The philosophy and history of maps and mapping, map reading, and types of maps and charts. A general liberal arts approach to maps. 11a is desirable, but not a prerequisite. *Three semester hours.* Mr. McCleary.

150b. MANAGEMENT AND CONSERVATION OF RESOURCES.
An introduction to natural resource problems arising from population pressure, change in taste and technology, and concern with the quality of the environment. Field trips required with $5.00 field trip fee. Limited to 25 students. Prerequisite: introductory social or natural science course. *Three semester hours.* Mr. Kates.

160. ECONOMIC GEOGRAPHY.
Introduction to major areal differences in economic activity. Agricultural and extractive systems will be treated during the first semester; location of manufacturing, transportation systems and service centers will be treated during the second semester. Prerequisite: Geography 10a, Economics 11, or the equivalent. *Six semester hours.* Mr. Anderson.

191a. ELEMENTS OF CARTOGRAPHY.
Required for all undergraduate majors. Principles of cartography, including map projections, compilation, generalization, and symbolization. Two hour lab. Prerequisite: Geography 11b. *Three semester hours.* Mr. McCleary.

191b. MAP ANALYSIS AND USE.
Methods and procedures for the analysis of geographic problems. Two hour lab. Prerequisite: Geography 191a. *Three semester hours.* Mr. McCleary.

200b. GEOGRAPHY IN EDUCATION. Not offered, 1966-67.
Geography in the present-day school system; designed to meet needs of those teaching or expecting to teach geography as a separate subject or in the social studies. *Three semester hours.*

202. HONORS.
Independent study, reading and research. Open only to honors undergraduates. *Three to six semester hours.* Staff.

214a. PRINCIPLES OF GEOMORPHOLOGY.
The analysis and distribution of physical features in the geographic landscape. Field trips required, with $5.00 field trip fee. Prerequisite: Geography 10 or Geology 12, or equivalent. *Three semester hours.* Mr. Snead.

214b. REGIONAL PHYSIOGRAPHY. Not offered, 1966-67.
The regional interpretation of major land forms of North America and their interrelationships with climate, vegetation and soils. Field trips required, with $5.00 field trip fee. Prerequisite: Geography 214a or equivalent. *Three semester hours.* Mr. Snead.

220a. ELEMENTS OF PHYSICAL CLIMATOLOGY.
A survey of the elements of climate, atmospheric circulation and the exchange of heat and moisture between the earth and its atmosphere. Prerequisite: Geography 10 or consent of the instructor. *Three semester hours.* Mr. Snead.

221b. REGIONAL CLIMATOLOGY.
World classification and description of climates. The various classifications of climate especially as related to vegetation. Prerequisite: Geography 220a or consent of the instructor. *Three semester hours.* Mr. Snead.

230. POLITICAL GEOGRAPHY.
Theory and structure of political geography. Political processes and the physical cultural landscape; spatial structure of the national state and of international political systems. Prerequisites: Geography 10 or 11, or Government 14. *Six semester hours.* Mr. Cohen.

245a. INTRODUCTION TO QUANTITATIVE METHODS IN GEOGRAPHY.
Elementary statistical methods for geographers. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Kates.

272. HISTORICAL-CULTURAL GEOGRAPHY.
An historical approach to the study of man's transformation and use of the earth. *Six semester hours.* Mr. Bowden.

282a. GEOGRAPHY OF ANGLO-AMERICA. Not offered, 1966-67.
Three semester hours.

283a. GEOGRAPHY OF MIDDLE AMERICA. Not offered, 1966-67.
Three semester hours.

283b. GEOGRAPHY OF SOUTH AMERICA. Not offered, 1966-67.
Three semester hours.

285b. GEOGRAPHY OF EUROPE.
Three semester hours. Mr. Bowden.

286b. GEOGRAPHY OF SOUTHERN ASIA. Not offered, 1966-67.
Three semester hours.

287b. GEOGRAPHY OF THE SOVIET UNION.
A topical (systematic) approach will be followed with special emphasis on the historical geography of the Russian Empire and the economic geography of the U.S.S.R. *Three semester hours.* Mr. Anderson.

310b. PRINCIPLES OF GEOMORPHOLOGY. Not offered, 1966-67.
Three semester hours.

331a. PROBLEMS IN POLITICAL GEOGRAPHY.
Historical development of political geography; current theory and research approaches. Prerequisite: Geography 230 or its equivalent. *Three semester hours.* Mr. Cohen.

340a. AGRICULTURAL GEOGRAPHY.
A study of physical, and cultural factors associated with the areal differentiation of agricultural systems. Space-adjusting strategies of individual farm systems, national strategies of agricultural development. *Three semester hours.* Mr. Anderson.

347b. QUANTITATIVE METHODS IN GEOGRAPHIC RESEARCH.
Application of quantitative methods to current geographic research. Prerequisite: Geography 245a or equivalent. *Three semester hours.* Mr. Beed.

350b. PROBLEMS OF RESOURCE MANAGEMENT.
Methods of estimation and projection of resource availability and need. Evaluation of institutions for resource allocation and decision-making. *Three semester hours each semester.* Mr. Kates.

360a. PROBLEMS IN ECONOMIC GEOGRAPHY.
Various research fields, research methods, and detailed techniques in economic geography. *Three semester hours.* Mr. Beed.

361b. URBAN GEOGRAPHY.
A systematic study of the American city at both intercity and intracity levels. Emphasis on research that has been done, and on sources and research ideas. *Six semester hours.* Mr. Murphy.

362b. PROBLEMS IN HISTORICAL URBAN GEOGRAPHY. Not offered, 1966-67.
Study of man's changing conception and idealization of the town; and of the external relations and internal structure of urban places from 5000 BC to the present. *Three semester hours.*

370a. HUMAN AND CULTURAL GEOGRAPHY. Not offered, 1966-67.
Three semester hours.

390a. AIR PHOTO INTERPRETATION. Not offered, 1966-67.
Three semester hours.

399a. FIELD COURSE AND CAMP.
A fall program of field techniques and a three week field camp in January to be held either in the Caribbean or Southern United States. Fee to range from $40 to $80 depending on locale. Required of graduate students who have not had equivalent. *Three semester hours.* Mr. Anderson, Mr. Snead, and Staff.

SEMINARS

30a. Seminar in Population Geography.
Three semester hours. Mr. Warman.

315a. Seminar in Geomorphology.
Three semester hours. Mr. Snead.

355b. Seminar on Resources.
Three semester hours. Mr. Kates.

356b. Seminar on Perception of the Geographic Environment. Not offered, 1966-67.
Three semester hours.

363b. Seminar in Marketing Geography.
Three semester hours. Mr. Beed.

365b. Seminar in Economic Geography. Not offered, 1966-67.
Three semester hours.

366a. Seminar in Urban Geography. Not offered, 1966-67.
Three semester hours.

372a. Seminar in Historical and Cultural Geography. Not offered, 1966-67.
Three semester hours.

375a. Seminar in Cultural Geography. Not offered, 1966-67.
Three semester hours.

380a. Seminar in Philosophy of Geography. Not offered, 1966-67.
Three semester hours.

381b. Seminar on Themes in Geographic Thought.
Three semester hours. Mr. Bowden.

391a. Seminar in Cartography. Not offered, 1966-67.

READING, RESEARCH AND THESIS COURSES

300. Reading Course.
Prerequisite: consent of the instructor.

301. Research in Geography.
Prerequisite: consent of the instructor.

302. Thesis Research.
Single or double course. Prerequisite: consent of the staff.

Geology

DEPARTMENT FACULTY

Wesley E. Bryers, Ph.D., *Assistant Professor of Geology*
Joseph A. Sinnott, M.S., *Lecturer in Geology*

UNDERGRADUATE PROGRAM

The department offers an undergraduate major in cooperation with Dr. Snead of the University's Graduate School of Geography and Joseph R. Sage of the Civil Engineering Department of Worcester Polytechnic Institute.

Majors in geology are required to take seven year-courses or their equivalent in half-year courses. At least four and one-half of these courses must be in geology or geomorphology.

Attendance at an approved summer field camp is required of majors and counts as a half to full-year course in geology. The field station operated by Miami University, Oxford, Ohio is located at Dubois, Wyoming, near Yellowstone National Park. It will be used by all students attending a western field camp. Anyone unable to make arrangements for a summer in the West will be placed in a field camp operated by an eastern college, at the discretion of the department.

Related fields which may be used toward supplementing the requirements for the major are civil engineering, biology, chemistry, mathematics, physics, and cartography. Courses chosen from these fields are based upon the student's desire to fulfill the general requirements for graduate work. They are not required by the department for an undergraduate major except where they relate to the general requirements of the university.

COURSES

11. General Geology.

Introduction to geology, origin of the earth, its development through time and the succession of plant and animal life. First semester deals with common rocks, their structure, origin and occurrence; geological activities of the air, streams and sea; nature of glaciers, volcanoes and earthquakes, and age of the earth. Laboratory work consists of rock and mineral identification and map interpretation. Second semester deals with the origin of continents and ocean basins, their development through time; the geologic history of North America; and evolution of life through geologic time. Laboratory work consists of geologic map interpretation and fossil identification. Occasional field trips. Indivisible course. Open to freshmen. Laboratory. *Four semester hours each semester.*
Mr. Bryers and Assistants.

111a. Introductory Mineralogy.

Not offered, 1966-67.

Study of crystallographic, physical and chemical properties of common minerals. Field trip. Laboratory. *Four semester hours.* Mr. Bryers.

122. Economic Geology.

Not offered, 1966-67.

Introductory survey of the origin and structural relations of the important metallic and non-metallic mineral deposits. Techniques of exploration and mining will be reviewed. Field trips. Laboratory. *Four semester hours each semester.* Mr. Bryers.

131b. Structural Geology.

Analysis of rock deformation based on the principles of mechanics and the utilization of research data obtained from laboratory and field investigations. The principles of structural geology will be applied to the interpretation of major fold, fault and fracture systems of the earth. Field trip. Laboratory. *Four semester hours.* Mr. Bryers.

141a. The Fossil Record.

A systematic survey of the morphology, taxonomy and geologic history of groups of organisms commonly found as fossils. The techniques and principles used for interpreting the fossil communities in terms of age and environment will be discussed. Field trip. Laboratory. *Four semester hours.* Mr. Bryers.

151b. INTRODUCTORY FIELD METHODS.
A survey course in field geology. Includes introductory methods in plane table mapping, air photo interpretation, and topographic mapping. Numerous field excursions. Prerequisite: permission of department. *Three semester hours.* Mr. Sinnott.

161a and b. SPECIAL PROJECTS.
Selected Research Topics in Geology. Prerequisite: permission of department. *Three semester hours each semester.* Staff.

SUMMER FIELD CAMP IN GEOLOGY.
Required of geology majors and should be taken at the end of the sophomore or junior year at a field camp approved by the department. *Three to six semester hours.*

Geography: course descriptions are under the section, "Geography."

214a. PRINCIPLES OF GEOMORPHOLOGY. Mr. Snead.

214b. REGIONAL PHYSIOGRAPHY. Mr. Snead.

220a. ELEMENTS OF PHYSICAL CLIMATOLOGY. Mr. Snead.

220b. REGIONAL CLIMATOLOGY. Mr. Snead.

Civil Engineering: course descriptions are in the section under "Department of Civil Engineering" in the catalog of Worcester Polytechnic Institute.

CE. 540. ENGINEERING GEOLOGY. Mr. Sage.

CE. 541. SEDIMENTATION AND STRATIGRAPHY. Mr. Sage.

German

DEPARTMENT FACULTY

Karl J. R. Arndt, Ph.D., *Professor of German, Department Chairman*
James S. Edwards, A.M., *Associate Professor of German*
Walter Schatzberg, Ph.D., *Assistant Professor of German*
Erika T. Theobald, Ph.D., *Assistant Professor of German*

UNDERGRADUATE PROGRAM

The Department of German intends primarily to give its students a liberal and humanistic education by presenting and interpreting the language, life, and literature of German-speaking peoples. Students interested in German as their major should consult the department chairman; for honors programs, Mr. Edwards. The Department requires a regular class attendance in all courses.

FIRST YEAR COURSES

11. INTRODUCTORY GERMAN.
A comprehensive introduction to the written as well as the spoken language. The course aims at acquisition of all four skills: reading, writing, speaking and understanding. The

language laboratory will be used to assist in reaching these goals. Laboratory fee. Indivisible course. *Three semester hours each semester.*
Mr. Edwards, Mr. Schatzberg and Mrs. Theobald.

SECOND YEAR COURSES

12. INTERMEDIATE GERMAN.
Review of German grammar. Study of expository and narrative prose. Aural and oral training will be continued with the assistance of the language laboratory. Laboratory fee. Prerequisite: German 11 or advanced placement. *Three semester hours each semester.*
Staff.

14. INTERMEDIATE ORAL AND WRITTEN GERMAN.
Principally for students who decide to major in German but have no preparatory school training in the language. Does not complete requirement in German. Intensive aural-oral drill, assisted by the language laboratory. Prerequisite: B+ in German 11. *Three semester hours each semester.* Mrs. Theobald.

ADVANCED COURSES (These level courses complete the language requirement in German.)

132. ADVANCED COMPOSITION AND LITERATURE. Not offered, 1966-67.
Intensive training in the aural, oral, and written use of the language in preparation for teaching and government service. Required of majors. Prerequisite: oral and written examination. *Three semester hours each semester.* Mrs. Theobald.

134. GERMAN LITERATURE SINCE GOETHE.
Reading and interpretation of representative works of German literature since Goethe. Prerequisite: German 12 or advanced placement. *Three semester hours each semester.*
Mr. Edwards.

136. GERMAN LYRICS.
German lyric poetry from the Baroque to the present. Prerequisite: German 12. *Three semester hours each semester.* Mr. Arndt.

138. CONTEMPORARY GERMAN DRAMA.
Reading and interpretation of outstanding works of contemporary German drama, including plays of Dürrenmatt, Frisch, Hochwälder, Hochhuth, and Peter Weiss. Prerequisite: German 12. *Three semester hours each semester.* Mrs. Theobald.

140a. GERMAN ENLIGHTENMENT.
A study of works of Brockes, Gottsched, Haller, Wieland, and Lessing. Prerequisite: German 12. *Three semester hours.* Mr. Schatzberg.

142b. GERMAN ROMANTICISM.
A study of works of Novalis, Tieck, Arnim, Grimm, and Eichendorff. Prerequisite: German 12. *Three semester hours.* Mr. Schatzberg.

150a. GOETHE.
An introduction to the life and work of Goethe, excepting his Faust. Replaces first semester of 130. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Arndt.

152b. SCHILLER.
An introduction to the life and work of Schiller. Replaces second semester of 130. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Arndt.

154. HISTORY OF GERMAN LITERATURE. Not offered, 1966-67.
Survey of German literature from earliest times to the present. Given in German. Prerequisite: German 132 or consent of the instructor. *Three semester hours each semester.* Mr. Arndt.

162a. GOETHE'S FAUST. Not offered, 1966-67.
Reading and discussion of Goethe's *Faust I and II*. Given in German. Prerequisite: German 132 or consent of the instructor. *Three semester hours.* Mr. Arndt.

165b. FROM EXPRESSIONISM TO CATASTROPHE.
German literature from World War I to World War II. Given in German. Prerequisite: German 132 or consent of the instructor. *Three semester hours.* Mr. Arndt.

166. GERMAN DRAMA SINCE KLEIST. Not offered, 1966-67.
Given in German. *Six semester hours.* Mr. Edwards.

198. SEMINAR. Not offered, 1966-67.
Principally for majors but open to other qualified upperclassmen. Research into selected areas of German literature. Prerequisite: consent of the instructor. *Three semester hours each semester.* Staff.

COURSES GIVEN IN ENGLISH

141. GERMANIC CIVILIZATION.
Illustrated lecture course on the literature, history and fine arts of German lands from the Holy Roman Empire to the present day, with emphasis on the Reformation, Age of Enlightenment and the Classical Period. Given in English. Meets the fine arts requirement for students admitted before September, 1964. *Three semester hours each semester.* Mr. Edwards.

170a. THE FAUST THEME IN LITERATURE.
A study of the fortunes of Faust and the Faustian spirit as treated in European and American literature from the Reformation to Hiroshima. Given in English. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Arndt.

172. THE GERMAN CONTRIBUTION TO WORLD LITERATURE. Not offered, 1966-67.
Goethe in 1827: "The epoch of world literature is here and everyone must now work to hasten the development of this epoch." This course will study such translated works of German literature which contribute most to the understanding of Germany and her place in the Western world. Reading, analysis and discussion of translated works from various periods of German literature, starting with the *Song of the Nibelungs* and ending with representative works of the currently dominant "Group 1947." Given in English. Prerequisite: consent of the instructor. *Three semester hours each semester.* Mr. Arndt.

History, Government and International Relations

DEPARTMENT FACULTY

Sherman S. Hayden, Ph.D., *Professor of International Relations, Department Chairman*
George A. Billias, Ph.D., *Professor of American History*
Robert F. Campbell, Ph.D., *Professor of American History*
Morris H. Cohen, Ph.D., *Professor of Government*
Gerald N. Grob, Ph.D., *Professor of American History*
H. Donaldson Jordan, Ph.D., *Professor of English History*
Dwight E. Lee, Ph.D., *Jacob and Frances Hiatt Professor of European History*
Clifford K. Shipton, Ph.D., *Professor (affiliate) of American History*
Daniel R. Borg, Ph.D., *Associate Professor of European History*
Knud Rasmussen, Ph.D., *Associate Professor of Government*
Stewart A. Stehlin, Ph.D., *Assistant Professor of European History*

UNDERGRADUATE PROGRAM

The department offers basic courses in the fields of American, European and British history, American and European government, and international relations. It offers major programs of study in history, government and international relations.

All history and government majors must take History 10, preferably in the freshman year; Economics 11, normally before the end of the sophomore year, and History 205a and 205b, in either the junior or senior year. Majors in government should also take Government 15 before the end of the sophomore year. Further elections in this and related departments are determined by the student's special interest, but they are expected to include at least two upper-class courses in this department, in addition to History 205.

Majors in international relations should take History 10 in the freshman year, and Economics 11 and Government 14 before the end of the sophomore year. Also required for this major are History 205a, Government 240b and 241, six hours in economics (preferably 207 or 200) and six hours in geography or in history.

Non-majors who have not taken History 10 may elect other courses offered by the department with permission of the instructor if, in his judgment, the student has an adequate background for the course.

GRADUATE PROGRAM

The principal fields of graduate study are American, English and European history and politics, modern diplomacy, and the international relations of the United States, Europe, the Commonwealth and the Far East.

Master of Arts: The program for the degree of Master of Arts is worked out individually with each student, who may choose to concentrate on history, government or international relations. All students are required to take the departmental seminar, History 30a.

A master's thesis and an oral examination are required for this degree. A complete draft of the thesis must be received by the Monday following spring recess of the year in which the candidate hopes to receive the degree.

Doctor of Philosophy: The program for the degree of Doctor of Philosophy may be taken in history or international relations. Each student must choose four fields of study, to be agreed upon as early as possible in the first year of residence beyond the Master of Arts and after a conference between the student and the department staff. In a history program, at least one field must be chosen from related subjects. In an international relations program, work in economics and geography should be included upon consultation among the departments concerned. One or two of the four fields should be completed by passing written examinations. The others are tested by an oral examination given by the staff. The passing of the four fields by courses or examination constitutes the "preliminary examination."

Before completing the preliminaries, examinations in French and German must be passed. Permission may be requested to substitute another language for one of these or a second examination in either one designed to demonstrate research competence at a high level.

The doctoral dissertation, written in that field which is designated as the special field, must be submitted in complete preliminary draft to the supervising instructor not later than March 1 of the year in which the candidate hopes to receive the degree. The final examination for the doctorate covers both the dissertation and the special field.

Some teaching experience at Clark, or such other teaching as the department may regard as equivalent, is prerequisite to the Doctor's degree.

Attention is invited to a three-year special program leading to the Doctor's degree in Colonial and Early American History.

COURSES IN HISTORY

10. EUROPE AND THE UNITED STATES SINCE 1500.
A study of selected topics designed to illustrate the evolution of modern Western society. The emphasis throughout will be on the thought patterns underlying institutional developments. *Three semester hours each semester.* Mr. Borg, Mr. Campbell, Mr. Stehlin.

12. HISTORY OF ENGLAND.
Constitutional history is emphasized, particularly in the first semester. *Three semester hours each semester.* Mr. Jordan.

202. THE IDEA OF HISTORY.
Readings and discussion in European history from 1500 to 1815: the Reformation, rise of modern science, the Enlightenment, development of political absolutism, French Revolution, Napoleonic period. *Note:* No longer a seminar in history of the idea of history. *Three semester hours each semester.* Mr. Borg.

205a. ROOTS OF POLITICAL THOUGHT.
A study of the development of Western political thought from the Socratic philosophies to Hobbes. The study will deal with the evolution of political thought in the context of influential, social, political, and economic forces. *Three semester hours.* Mr. Rasmussen.

205b. RECENT POLITICAL THOUGHT.
A study of modern political theory as developed in the context of the social, political, and economic forces which have shaped Western thought since the French Revolution. *Three semester hours.* Mr. Rasmussen.

208a. TOTALITARIANISM. Not offered, 1966-67.
A seminar on the origins, ideology and operation of the German Nazi and Italian Fascist regimes. *Three semester hours.* Mr. Borg.

209b. CHURCH AND STATE IN MODERN EUROPE. Not offered, 1966-67.
A seminar on church-state relations since the Reformation, with special reference to political attitudes and involvements of established churches since the French Revolution. *Three semester hours.* Mr. Borg.

21. FOUNDATIONS OF MODERN EUROPE. Offered, second semester, 1966-67.
The later Medieval, Renaissance and Reformation periods. Offered in alternate years. *Three semester hours each semester.* Mr. Lee, Mr. Borg.

210. EUROPE, 1648-1815.
The rise of the absolute state, the old regime, the French Revolution and Napoleon. Attention is given to the rise of science, the Enlightenment and the origins of liberalism and rationalism. Offered in alternate years. *Three semester hours each semester.* Mr. Borg.

211b. EUROPE, 1815-1939. Not offered, 1966-67.
Offered in alternate years. *Three semester hours.* Mr. Lee.

213. EUROPEAN DIPLOMATIC HISTORY FROM 1815.
Three semester hours each semester. Mr. Stehlin.

215. GERMANY SINCE 1500. Not offered, 1966-67.
Offered in alternate years. *Three semester hours each semester.* Mr. Borg.

22b. TUDOR AND STUART ENGLAND.
The period from 1485 to 1688 with attention to the social backgrounds of English literature and conditions leading to the colonization of America. *Three semester hours.* Mr. Jordan.

221. ENGLAND SINCE 1760.
Stress will be on political and social change. *Three semester hours each semester.* Mr. Jordan.

225a. RECENT HISTORY OF THE BRITISH EMPIRE AND COMMONWEALTH. Not offered, 1966-67.
Developments since about 1900. *Three semester hours.* Mr. Jordan.

230b. INTELLECTUAL HISTORY OF THE UNITED STATES SINCE 1860.
Three semester hours. Mr. Grob.

231. AMERICAN COLONIAL HISTORY.
From the first English settlements to the Revolutionary War era. *Three semester hours each semester.* Mr. Billias.

234a. AMERICAN DIPLOMATIC HISTORY. Not offered, 1966-67.
From 1776 to about 1941. Offered in alternate years. *Three semester hours.* Mr. Hayden.

235a. THE UNITED STATES SINCE 1917. Not offered, 1966-67.
Offered in alternate years. *Three semester hours.* Mr. Campbell.

236. THE UNITED STATES, 1828-1917.
Three semester hours each semester. Mr. Grob.

237a. Era of the American Revolution.
Three semester hours. Mr. Billias.

238a. The Federalist Period. Not offered, 1966-67.
Opportunity for group discussion and individual research in the early national period. *Three semester hours.* Mr. Billias.

238b. The Jeffersonian Period. Not offered, 1966-67.
Opportunity for group discussion and individual research in the early national period. *Three semester hours.* Mr. Billias.

239. Introduction to Research in American Colonial History.
Lectures on selected topics and opportunities for research in the field; discussion of problem areas. Admission only by permission of the instructors. *Three semester hours each semester.* Mr. Billias, Mr. Shipton.

274b. The Modern Far East. Not offered, 1966-67.
Primarily international relations in the region since 1895. Offered in alternate years. *Three semester hours.* Mr. Hayden.

281b. Russia, 1700-1917.
Three semester hours. Mr. Stehlin.

282b. History of the Soviet System. Not offered, 1966-67.
A brief survey of Marxist ideology and pre-1917 Russian history and a concentration on the political, economic (non-technical) and social evolution of Russia under the Communist regime. *Three semester hours.*

30a. Department Seminar.
Introduction to bibliography and methods of research. Required of all first-year graduate students in the department. *Three semester hours.* Mr. Grob and the Staff.

314a. European International Relations, 1870-1918. Not offered, 1966-67.
Three semester hours. Mr. Lee.

321a. Victorian England.
Individual reports will be emphasized. *Three semester hours.* Mr. Jordan.

331. The Literature of American History: The National Period.
Readings and discussion in the field of United States history since 1815. *Three semester hours each semester.* Mr. Grob.

332. Problems in American Colonial History.
Three semester hours each semester. Mr. Billias.

GRADUATE READING AND THESIS COURSES

31. Reading } In the History and International Relations of Europe.
310. Thesis } Mr. Borg, Mr. Lee.

32. Reading } In the History and International Relations of England
320. Thesis } and the British Empire. Mr. Jordan.

33. Reading } In the History of the United States.
330. Thesis } Mr. Billias, Mr. Grob, Mr. Campbell.

COURSES IN GOVERNMENT

14. International Relations.
A survey of world politics since 1914, with emphasis on the shifting patterns of power and the rise of new nations and revolutionary doctrines. The second semester deals mainly with World War II and later events. *Three semester hours each semester.* Mr. Hayden.

15. Introduction to American Government.
A short survey of the theories of the origins and purposes of the state is followed by a study of American government with emphasis on contemporary problems of the federal government. *Three semester hours each semester.* Mr. Cohen.

240b. Seminar in International Relations.
Basic ideas and their application to current problems. Required for international relations majors. Open to a limited number of non-majors at the discretion of the instructor. *Three semester hours.* Mr. Hayden.

241. International Law and Organization.
First semester deals with the historic principles of international law and their application in the modern world. Second semester deals with the institutions created to handle problems of commerce, welfare and collective security on an international basis. Offered in alternate years. *Three semester hours each semester.* Mr. Hayden.

242b. International Politics.
A study of contemporary trends in international politics. Some emphasis will be placed on a systematic study of the national versus the international community. *Three semester hours.* Mr. Rasmussen.

25a. Comparative Government.
A comparative study of the major West European political systems. Some study of the political historic development will lay the basis for comparison of modern functions of government. *Three semester hours.* Mr. Rasmussen.

250. Seminar in 20th Century Political Theory.
A study of normative and analytic theory. Some emphasis will be placed on the individual in a modern mass society and the impact the development of the mass society has had upon theory. Open to juniors and seniors. Prerequisite: Roots of Political Thought and Recent Political Thought. *Three semester hours.* Mr. Rasmussen.

251a. American Political Parties.
American party organizations, pressure groups and the electorate in American politics, with emphasis on current problems and trends in the field. Offered in alternate years. *Three semester hours.* Mr. Cohen.

252b. Introduction to Public Administration. Not offered, 1966-67.
An examination of the role of administration in modern government, including problems of personnel administration, fiscal management, administrative regulation and government organization. Offered in alternate years. *Three semester hours.* Mr. Cohen.

254. American Constitutional History and Law.
A study of the major developments in our constitutional system and law, with emphasis

in the second semester on contemporary cases and problems. Offered in alternate years. *Three semester hours each semester.* Mr. Campbell, Mr. Cohen.

255b. The Legislative Process. Not offered, 1966-67.
A study of policy-making in Congress, involving problems of legislative organization and procedure, leadership and presidential-legislative relationships, examined primarily by the case method and by individual research on particular pieces of recent legislation. *Three semester hours.* Mr. Cohen.

259a. Introduction to Political Science. Not offered, 1966-67.
A survey of the components of political science with discussion of the development of the discipline. Some emphasis will be placed upon the systematic analytic study of modern political systems. *Three semester hours.* Mr. Rasmussen.

341a. Problems in International Relations.
Three semester hours. Mr. Hayden.

351b. Problems in American Government.
Three semester hours. Mr. Cohen.

GRADUATE READING AND THESIS COURSES

34. Reading }
340. Thesis } In International Relations. Mr. Hayden.

35. Reading }
350. Thesis } In American and Comparative Government and Politics. Mr. Rasmussen.

Linguistics

115. Man and Language. Not offered, 1966-67.
An introduction to the analysis of the nature and function of human language and its role in the life of individuals and societies. The approach is interdisciplinary, with attention to the points of view of philology, contemporary linguistics, anthropology, psychology and philosophy. The lectures focus on such questions as: What is language? What is the relation between language and thought? To what extent does our language determine how we perceive the world? Why and how do languages change? What other functions does language serve besides communication? Why do we not have a world language? How have linguists achieved an objective, scientific analysis of linguistic systems? What are the limitations of such a science?

The course is designed for the general student who wishes to know more about the nature of the uniquely and universally human institution of language, and for the student or teacher of English or foreign languages who is interested in the light which linguistic science can throw upon the relations between his field and other areas of life and knowledge.

First semester: lectures. Second semester: a seminar in which the members of the group report in depth on problems of their choosing.

Consent of the instructor required. Offered in alternate years. *Three semester hours each semester.* Mr. Reid.

Mathematics

DEPARTMENT FACULTY

Seymour Hayden, Ph.D., *Associate Professor of Mathematics, Department Chairman*
Zalman Rubinstein, Ph.D., *Associate Professor of Mathematics*
John S. Stubbe, Ph.D., *Associate Professor of Mathematics*
John F. Kennison, Ph.D., *Assistant Professor of Mathematics*
Connor Lazarov, Ph.D., *Assistant Professor of Mathematics*
Robert W. Kilmoyer, Jr., B.A., *Instructor in Mathematics*
Norman Noble, M.A., *Instructor in Mathematics*

UNDERGRADUATE PROGRAM

The department offers courses leading to a major in mathematics, courses necessary for the study of physical and certain social sciences and courses for the student wishing to learn the fundamental concepts of mathematics.

The departmental major requires five year-courses in mathematics, including either Mathematics 214 or Mathematics 215 and excluding Mathematics 11, as well as two year-courses in a related field. Mathematics 13, 113a and 114b should normally be taken in the Sophomore year at the latest. Students showing particular promise in the first semester of Mathematics 12 are encouraged to take Mathematics 114b in their Freshman year. A student who qualifies may undertake Honors work in his Junior and Senior years.

A non-credit course in Fortran is offered each year; and the courses in Probability and Statistics, Applied Mathematics, and Numerical Analysis include work with the Computer.

GRADUATE PROGRAM

The department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The requirements for the M.A.* are as follows: (1) Mathematics 300; (2) three courses beyond Mathematics 300; except that with the consent of the department, a student may substitute two courses below Mathematics 300 in place of one beyond; (3) a reading knowledge of a foreign language; (4) a Master's thesis; and (5) an oral examination.

The requirements for the Ph.D.*, in addition to the general requirements of the Graduate School, are as follows: (1) a student must pass a preliminary examination, which he would normally take after his second year of residence; the examination will be designed to test the student's knowledge and facility in the basic material of algebra, analysis, and topology; (2) he must also pass a qualifying examination in his field of specialization, normally to be taken at the end of his second or third year of residence; (3) the University Language requirement must be passed in either German, French, or Russian, as well as a departmental examination in a second language; (4) the candidate for the Ph.D. must present an acceptable dissertation which is an original contribution to mathematics, and must pass a final oral examination defending his dissertation.

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*All candidates for the M.A. and Ph.D. degrees in Mathematics will be required to serve as teaching assistants or as assistants in the Computing Center as part of the work for their degrees.

Graduate scholarships, teaching assistantships, Computing Center assistantships, and fellowships are available.

COURSES

11. FUNDAMENTALS OF MATHEMATICS.

A logical development of elementary mathematics: including an axiomatic treatment of the real number system, arithmetic and elementary algebra, functions and relations, polynomials and topics from the theory of equations, introductory analytic geometry, and the exponential, logarithmic, and trigonometric functions. As a background, the arithmetic and algebra over arbitrary sets will first be considered. *Three semester hours each semester.* Mr. Kennison and Staff.

12. CALCULUS. Mr. Stobbe and Staff.

Introduction to differential and integral calculus; essential for further study in mathematics as well as for the study of applications in the natural and social sciences. *Three semester hours each semester.* Mr. Stubbe and Staff.

13. INTERMEDIATE CALCULUS.

Geometric and physical applications of integration, sequences and series, three-dimensional analytic geometry, partial differentiation, multiple integrals, and a brief introduction to differential equations. Prerequisite: Mathematics 12. *Three semester hours each semester.* Staff.

113a. INTRODUCTION TO LINEAR ALGEBRA.

Mathematical induction, matrices, determinants, vector spaces. Euclidean vector spaces and quadratic forms. Prerequisite: Mathematics 12, or a B+ in Mathematics 11 plus consent of the instructor. Mathematics majors will normally take Mathematics 113a concurrently with Mathematics 13. *Three semester hours.* Mr. Lazarov.

114b. INTRODUCTION TO ANALYSIS.

The real number system, sequences, limits of functions, continuity, uniform continuity, differentiability and elements of point-set topology. Prerequisite: Mathematics 12, or a grade of A— in one semester of Mathematics 12 plus consent of the instructor. Mathematics majors will normally take Mathematics 114b concurrently with Mathematics 13. *Three semester hours.* Mr. Lazarov.

124a. ELEMENTARY THEORY OF NUMBERS. Not offered, 1966-67.

A study of the properties of divisibility, prime numbers, congruences and residues. Prerequisite: Mathematics 12. *Three semester hours.*

134b. INTRODUCTION TO MATHEMATICAL LOGIC. Not offered, 1966-67.

Axiomatic development of sentential and restricted predicate calculus; theory of classes, relations and functions; introduction to cardinal and ordinal numbers. *Three semester hours.*

145a. DIFFERENTIAL GEOMETRY. Not offered, 1966-67.

Elements of the metric geometry of curves and surfaces in Euclidean space developed by methods of calculus and analytic geometry extended to three dimensions. Prerequisite or to be taken concurrently: Mathematics 13. *Three semester hours.*

146b. INTRODUCTION TO GEOMETRY. Not offered, 1966-67.
Topics from projective geometry, non-Euclidean geometry and the foundations of Euclidean geometry. Prerequisite: Mathematics 13 or a B— in Mathematics 12. *Three semester hours.*

150a. POINT-SET TOPOLOGY. Not offered, 1966-67.
Set theory, topological spaces, continuous functions and metric spaces. Prerequisite: Mathematics 13 or a B— in Mathematics 12. *Three semester hours.*

210. MATHEMATICAL STATISTICS. Not offered, 1966-67.
Elements of probability theory, frequency distribution test of significance, large and small sampling, analysis of variance. Prerequisite: Mathematics 13. *Three semester hours each semester.* Mr. Stubbe.

212. NUMERICAL ANALYSIS. Not offered, 1966-67.
Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13. *Three semester hours each semester.* Mr. Stubbe.

214. ADVANCED CALCULUS.
Topics selected from among partial differentiation, integration, infinite series, improper integrals. Fourier series, integral transform and the calculus of variations. Prerequisite: Mathematics 114b, or consent of the instructor. *Three semester hours each semester.*
Mr. Noble.

215. MODERN ALGEBRA.
Introduction to the theory of groups, rings, integral domain, fields, vector spaces, matrices and related topics. Prerequisite: Mathematics 113a or consent of the instructor. *Three semester hours each semester.* Mr. Kilmoyer.

219. PROJECTIVE GEOMETRY. Not offered, 1966-67.
Synthetic and analytic projective geometry, including the projective theory of conics. Prerequisite: Mathematics 12 or consent of the instructor. *Three semester hours each semester.*

220. APPLIED MATHEMATICS.
Ordinary and partial differential equations and their applications, vector analysis, infinite series, line and surface integrals, Bessel functions, Legendre polynomials and Fourier series, introduction to functions of a complex variable. Prerequisite: Mathematics 13. *Three semester hours each semester.* Mr. Stubbe.

290. TOPICS IN ANALYSIS.
Content will be changed from year to year to fit the needs of graduate students. *Three semester hours each semester.* Staff.

291. TOPICS IN ALGEBRA.
Content will be changed from year to year to fit the needs of graduate students. *Three semester hours each semester.* Staff.

298. HONORS I.
Three semester hours each semester. Staff.

299. HONORS II.
Three semester hours each semester. Staff.

300. FOUNDATIONS OF MATHEMATICS.
Three semester hours each semester. Mr. Lazarov and Mr. Noble.

313. POINT-SET TOPOLOGY.
Three semester hours each semester. Mr. Noble.

316. FUNCTION OF A COMPLEX VARIABLE.
Analytic functions, line integrals, conformal mapping. Riemann surfaces. Prerequisite: Mathematics 214 or consent of the instructor. *Three semester hours each semester.* Mr. Rubinstein.

318. FUNCTIONS OF A REAL VARIABLE. Not offered, 1966-67.
Foundations of the real number system, algebra of sets, transfinite arithmetic, metric spaces, topological spaces, sequences and series, measure theory, differentiation and integration and functional analysis. Prerequisite: Mathematics 214; corequisite: Mathematics 300. *Three semester hours each semester.* Mr. Kennison.

321. ALGEBRAIC TOPOLOGY.
Introduction to algebraic topology including homotopy theory, singular and simplicial homology, and application to general spaces. Prerequisite: Mathematics 214 and 215. *Three semester hours each semester.* Mr. Lazarov.

325. ADVANCED MODERN ALGEBRA.
Galois theory, group theory, Wedderburn structure theorems for rings and linear algebras, introduction to algebraic number fields. Prerequisite: Mathematics 215; corequisite: Mathematics 300. *Three semester hours each semester.* Mr. Kilmoyer.

330. MASTER'S THESIS.

341. DIFFERENTIAL EQUATIONS.
Differential equations of the first order solvable by elementary methods. The linear equation of the first order. Integration factors. Elementary higher order equations. Existence and uniqueness theorems. The general theory of linear differential equations. Euler's equation. Systems of differential equations. Infinite series solutions of several order linear equations. The hypergeometric, Legendre and Bessel equations. Sturm-Liouville theory for second order differential equations. Green's function and eigenvalue problems.

Elementary partial differential equations. Particular and general solutions. Initial and boundary conditions. Homogeneous and non-homogeneous linear equations of the second order. The Fourier series method. Existence, uniqueness and representation of solutions. Prerequisite: Mathematics 214 or consent of the instructor. *Three semester hours each semester.* Mr. Rubinstein.

357. ADVANCED ABSTRACT ANALYSIS.
Rings of continuous functions. Categories. Reflective Functors. Prerequisite: Mathematics 318, or consent of the instructor. *Three semester hours each semester.* Mr. Kennison.

365. DIFFERENTIAL GEOMETRY. Not offered, 1966-67.
A study of differentiable manifolds. Prerequisite: Mathematics 214 and 215. *Three semester hours each semester.* Mr. Lazarov.

376. Representation Theory of Finite Groups. Not offered, 1966-67.
Prerequisite: Mathematics 325 and consent of the instructor. *Three semester hours each semester.* Mr. Hayden.

381. Seminar in Complex Variable. Not offered, 1966-67.
Three semester hours each semester. Mr. Rubinstein.

382. Seminar in Abstract Analysis and Point-Set Topology. Not offered, 1966-67.
Three semester hours each semester. Mr. Kennison.

383. Seminar in Algebra. Not offered, 1966-67.
Three semester hours each semester.

390. Readings in Mathematics.
Reading of the mathematical literature related to the student's research program. *Three semester hours each semester.* Staff.

391. Research in Mathematics.
Direction of the Ph.D. dissertation. *Three semester hours each semester.* Staff.

Music

DEPARTMENT FACULTY

Relly Raffman, A.M., *Professor of Music, Department Chairman*
Wesley M. Fuller, M.Mu., *Associate Professor of Music*
Eleanor Preble, B.M., *Teaching Affiliate, Flute*
Ella Lou Dimmock, B.A., *Teaching Affiliate, Voice*
Evelyn Fuller, M.M., *Teaching Affiliate, Piano*

UNDERGRADUATE PROGRAM

The department offers courses designed to teach students how to listen to music intelligently, to develop a comprehension of music on its own terms and to acquaint students with representative works from various periods of music history.

To be admitted to the music major, a student must demonstrate through a written examination a knowledge of the fundamentals of music, and he must demonstrate no later than the beginning of the sophomore year the ability to read and perform simple keyboard works.

The music major includes the following courses:

Theory: 110b, 121a, 122a, 123b, 124a and 125b.
Music History: 12a, 112a, 13b, 113b, 14a, 114a, 15b, 115b, and 16b or 17b.
Associated Studies: a one-semester course in either esthetics or art.

In the senior year, students who wish to emphasize composition should elect Music 118; students who wish to emphasize music history should elect Music 128.

Non-credit individual instruction in voice, flute and piano is offered by the department; other instrumental instruction will be provided upon sufficient demand. Payment for lessons is arranged on a semester basis and practice space is available at a nominal rental fee.

COURSES

10a. Introduction to Music.
Designed for the non-major, this course is a prerequisite for entrance into Music 12

through 17, inclusive. No credit toward the major allowed. Open to freshmen. *Three semester hours.* Staff.

120a. INTRODUCTION TO MUSIC.
Special topics in music pedagogy. For majors only. *One semester hour.* Staff.

110b. FUNDAMENTALS OF MUSIC.
Problems in sight-reading, ear-training and conducting. Three fifty-minute laboratory periods weekly. Required of all majors by the end of the sophomore year. Open to freshmen. *One semester hour.* Staff.

121a. PRIMARY THEORY.
Open to freshmen. Prerequisite: consent of instructor. *Three semester hours.* Mr. Raffman.

12a. MEDIEVAL AND RENAISSANCE PERIODS.
A survey of music before 1600. Prerequisite: 10a. Offered in alternate years. *Three semester hours.* Mr. Fuller.

112a. SPECIAL TOPICS IN MEDIEVAL AND RENAISSANCE MUSIC.
Independent study. Required of all music majors, but open to anyone concurrently enrolled in 12a. *One semester hour.* Mr. Fuller.

122a. THEORY: MODAL COUNTERPOINT.
Offered in alternate years. Prerequisite: 121a. *Three semester hours.* Mr. Fuller.

13b. BAROQUE AND CLASSICAL PERIODS.
A survey of music from 1600 to 1800. Offered in alternate years. *Three semester hours.* Staff.

113b. SPECIAL TOPICS IN BAROQUE AND CLASSICAL MUSIC.
Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 13b. *One semester hour.* Staff.

123b. THEORY: 18TH CENTURY COUNTERPOINT.
Canon and Fugue. Prerequisite: 121a. Offered in alternate years. *Three semester hours.* Mr. Raffman.

14a. NINETEENTH CENTURY MUSIC. Not offered, 1966-67.
A survey of the Romantic Period. Offered in alternate years. Prerequisite: 10a. *Three semester hours.* Mr. Raffman.

114a. SPECIAL TOPICS IN 19TH CENTURY MUSIC. Not offered, 1966-67.
Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 14a. *One semester hour.* Mr. Raffman.

124a. THEORY: 19TH CENTURY PRACTICE. Not offered, 1966-67.
Prerequisite: 121a. Offered in alternate years. *Three semester hours.* Mr. Fuller.

15b. TWENTIETH CENTURY MUSIC. Not offered, 1966-67.
Prerequisite: 10a. Offered in alternate years. *Three semester hours.* Staff.

115b. SPECIAL TOPICS IN 20TH CENTURY MUSIC. Not offered, 1966-67.
Independent study. Required of all music majors, but open to anyone concurrently enrolled in 15b. *One semester hour.* Staff.

125b. Theory: 20th Century Practice. Not offered, 1966-67.
Prerequisite: 121a and 124a. Offered in alternate years. *Three semester hours.* Staff.

16b. Choral Music.
Selected choral compositions from all periods of music history will be analyzed with score and recording. Because the study of performance problems is of key importance, a number of the works will be performed by the class. Open to freshmen. Prerequisite: 10a, or permission of the instructor. Offered in alternate years. *Three semester hours.*
Mr. Fuller.

17b. Opera. Not offered, 1966-67.
With the help of translated librettos, recordings and selected readings, a study is made of a group of operas representing all periods of music history, with emphasis on the many solutions to the combination of music and drama. Prerequisite: 10a. Offered in alternate years. *Three semester hours.* Mr. Fuller.

118. Senior Tutorial in Music History.
Three semester hours each semester. Staff.

128. Senior Tutorial in Composition.
Three semester hours each semester. Staff.

Philosophy

DEPARTMENT FACULTY

Robert N. Beck, Ph.D., *Professor of Philosophy, Department Chairman*
Jefferson A. White, Ph.D., *Associate Professor of Philosophy*
Gilbert Scott Markle, M.A., *Assistant Professor of Philosophy*

UNDERGRADUATE PROGRAM

The department offers courses to students who wish to broaden their perspective and trace relations among the various fields of knowledge and to students who wish to major in philosophy.

The major consists of four courses in philosophy and three additional courses in related fields. The latter are determined according to the student's special interest.

COURSES

11a. Logic and Scientific Method.
Principles of valid reasoning and inductive methods and their application to problems of the natural and social sciences. Consideration of the relations between logic and problems of value. Open to freshmen. *Three semester hours.* Mr. Beck.

11b. Problems of Philosophy.
Nature and method of philosophy. Application of philosophical method to contemporary personal and social problems. Detailed analysis of some typical problems in various fields of philosophy. Open to freshmen. *Three semester hours.* Mr. Beck.

Philosophy 12 series is organized in four semester-courses, I, II, III and IV.

121a. HISTORY OF ANCIENT PHILOSOPHY I.
Movements of philosophical thought from their origins with the early Greeks through Plato and Aristotle. *Three semester hours.* Mr. White.

122b. HELLENISTIC AND MEDIEVAL PHILOSOPHY II.
Developments in Hellenistic and medieval philosophy from Epicureanism, Stoicism, Skepticism and Neo-Platonism through Augustine, Aquinas, and William of Occam to the attack on scholasticism. *Three semester hours.* Mr. White.

123a. HISTORY OF MODERN PHILOSOPHY III.
Major thinkers and philosophical movements from the beginnings of the modern period in Descartes to the 19th century. Prerequisite: three semester hours in philosophy or History 10. *Three semester hours.* Mr. Markle.

124b. HISTORY OF RECENT PHILOSOPHY IV.
Recent developments in philosophy, with emphasis on the historical roots of contemporary thought. Prerequisite: Philosophy 123a. *Three semester hours.* To be announced.

13a. PROBLEMS OF ETHICS.
Consideration of important ethical theories to acquaint the student with problems and scope of ethics and to aid him in the formulation of an ethical outlook. Offered in alternate years. Open to juniors and seniors. *Three semester hours.* Mr. Beck.

13b. ESTHETICS.
The nature of art, the characteristics of esthetic experience, and the relation of art to the human enterprise as a whole. Special reference is made to representative figures in contemporary philosophy such as Santayana, Veron, Dewey, Weitz, Macdonald, Bosanquet, Langer, Hume, and T. H. Greene. Open to juniors and seniors. *Three semester hours.* Mr. White.

14a. SOCIAL PHILOSOPHY. Not offered, 1966-67.
Principles underlying social structure and functions. Examination of the goals, purposes, norms and ideals of social process, and the relation of that process to the individual good. Offered in alternate years. Open to juniors and seniors. *Three semester hours.* Mr. Beck.

14b. HISTORY OF AMERICAN PHILOSOPHY.
Survey of important philosophical ideas in America with emphasis on their relationship to American experience. *Three semester hours.* Mr. Beck.

15b. PHILOSOPHY OF RELIGION. Not offered, 1966-67.
The nature of religion as revealed by an examination of the history of world religions and representative types of contemporary religious philosophy. Open to juniors and seniors. Prerequisite: three semester hours in philosophy. *Three semester hours.* Mr. White.

16a. METAPHYSICS.
Clarification of the nature of metaphysical thinking and views of representative contemporary philosophers on the nature of space, time, causality, matter, force, self-identity, mind, body, and freedom. Open to juniors and seniors. Prerequisite: six semester hours in philosophy. *Three semester hours.* Mr. White.

17a. PHILOSOPHY OF SCIENCE.
Problems of scientific explanation as seen in the evolving context of classical physics. Emphasis on 20th century developments. Prerequisite: three semester hours in philosophy. *Three semester hours.* Mr. Markle.

17b. SCIENCE AND THE HUMAN ENTERPRISE.
The place and possible limits of scientific explanation. Science as a tool and as investigation of the nature of things. Prerequisite: three semester hours in philosophy. *Three semester hours.* Mr. Markle.

201-4. SEMINAR IN PHILOSOPHY.
Advanced study of topics of central importance to philosophy. Whitehead, Kant, theory of value, problem of justice, mind and body. Prerequisites: two year-courses in philosophy, including 121 and 122. *Three semester hours each semester.* Staff.

HONORS IN PHILOSOPHY.
Advanced individual study of philosophic problems. Honors includes the preparation of an acceptable thesis and a comprehensive examination. Prerequisite: consent of the department. *Normally, six semester hours.* Staff.

EDUCATION 290b. PHILOSOPHY OF EDUCATION.
Description offered in the department statement under Education.

Physics

DEPARTMENT FACULTY

Roy S. Anderson, Ph.D., *Professor of Physics, Department Chairman*
Earl E. Hays, Ph.D., *Associate Professor (affiliate) of Physics*
Juergen Heberle, Ph.D., *Associate Professor of Physics*
C. Alton Coulter, Ph.D., *Assistant Professor of Physics*
John A. Davies, Ph.D., *Assistant Professor of Physics*
Roger P. Kohin, Ph.D., *Assistant Professor of Physics*

UNDERGRADUATE PROGRAM

The undergraduate program in physics has been designed to prepare a student for a career in physics, to supplement the program of another science, or to introduce the field, as a part of liberal studies.

The physics major will provide a strong foundation for students preparing for graduate study or will assure proper training for teaching and professional work in physics. The major consists of Physics 101, 150a, 160b, 200, 206a, 207b, Mathematics 13, six additional semester hours in mathematics, beyond Mathematics 13, and six semester hours in chemistry, usually Chemistry 11. Students preparing for graduate work in physics are urged to take one course in mathematics each year and Physics 202a, 203b, and 208b. It is recommended that the College language requirement be satisfied by either German or Russian. Attention is directed to courses in nuclear physics and electrical engineering available at the Worcester Polytechnic Institute for credit at Clark University.

Physics 101 and Mathematics 13 are the usual prerequisites for all advanced courses in physics. Freshmen normally register for Physics 11, but may be admitted directly into Physics 101 by passing an advanced placement examination administered by the Department.

Qualified students are encouraged to participate in the physics honors program. During the junior and senior year the honors student conducts an individual experimental or theoretical research project under the guidance of a faculty member. This work is submitted to the Department as an honors thesis. Recommendation for a degree with Honors in Physics is determined by the quality of the thesis and the performance of the student on a comprehensive examination in physics. An Honors candidate must maintain an overall B— average in physics and mathematics courses. The National Science Foundation, through its Undergraduate Science Education Program, has provided students with summer stipends to support their individual research projects. Further information on the Honors Program or NSF support is available from the Department.

GRADUATE PROGRAM

Graduate programs are offered leading to the degrees of Master of Arts and Doctor of Philosophy. A doctoral program in Chemical Physics, offered jointly with the Department of Chemistry, is also available.

Departmental research is being conducted in both theoretical and experimental physics. There are theoretical research programs in solid state physics and quantum electrodynamics. Experimental programs include studies of the Mössbauer effect and the use of electron spin resonance spectroscopy to investigate radiation damage in solids and the nature of ferroelectricity. In addition, theoretical and experimental research in oceanography is offered in cooperation with the Woods Hole Oceanographic Institution.

Graduate scholarships, teaching and research assistantships, and various research fellowships are available. Information on these awards will be furnished on request to the Department of Physics. First year graduate students usually receive teaching assistantships and a tuition scholarship. Following the first academic year, graduate students may be awarded twelve-month research assistantships with tuition scholarships. Research conducted while on research assistantships may constitute graduate thesis or dissertation work.

All graduate students are required to pass the Physics Qualifying Examination which is designed to test the student's ability to solve problems at the upper-class undergraduate level.

In addition to the requirements of the Graduate School, students in the M.A. program are generally responsible for the material covered in Physics 301, 304, and 305.

Students in the Ph.D. program, in addition to satisfying the Graduate School requirements, will normally pass courses totalling at least 48 semester hours. This includes credit for seminars, a maximum of twelve semester hours for research, and at least eighteen semester hours in courses given by other departments, twelve of which must be in the field of mathematics. Students are responsible for the material covered in Physics 301, 304, and 305.

Students in the doctoral program take Part I of the Physics Preliminary Examination no later than the beginning of the third year of graduate study. This is a comprehensive written and oral examination covering classical and modern physics at the graduate level. Part II is an oral examination of a research proposal presented by the student at a departmental colloquium.

Doctoral students must pass the University language examination in either German or Russian. This examination is normally taken in the fall of the second year of graduate study.

A detailed description of graduate programs and requirements is available from the Department of Physics.

COURSES

11. General Physics.
The principles of mechanics, heat, wave motion, electricity, and atomic and nuclear physics. Three lectures, one laboratory, and one recitation per week. Prerequisite: consent of the instructor is required in the absence of two years of high school algebra and trigonometry, or the equivalent. Indivisible course, except by consent of the instructor. *Four semester hours each semester.* Mr. Kohin.

101. Intermediate Physics.
Intermediate mechanics and electricity, using vector analysis. Mechanics: the statics and dynamics of particles, systems of particles and rigid bodies. Electricity: electric and magnetic fields and potentials. Direct, alternating and transient currents. Circuits and circuit elements. Three lectures and one laboratory per week. Required of physics majors. Prerequisite: Mathematics 12. *Four semester hours each semester.*
Mr. Anderson, Mr. Hays.

150a. Mechanics.
Advanced methods in mechanics, with emphasis on the motion of rigid bodies. D'Alembert's principle and Lagrange's equations. Required of physics majors. Prerequisite: Physics 101 or consent of the instructor. *Three semester hours.* Mr. Anderson.

160b. Electromagnetism.
The mathematical theory of electricity and magnetism. Fields and potentials. Maxwell's equations. Electromagnetic waves. Required of physics majors. Prerequisite: Physics 101 or consent of the instructor. *Three semester hours.* Mr. Anderson.

200. Advanced Physical Measurements.
Laboratory in atomic, molecular, nuclear and solid-state physics. Three hours each week, throughout the year. Required of physics majors. *One semester hour each semester.*
Mr. Kohin.

202b. Thermodynamics and Kinetic Theory.
The laws of thermodynamics, the kinetic theory of gases, and an introduction to statistical mechanics. Prerequisite: Mathematics 13. Offered in alternate years. *Three semester hours.* Mr. Heberle.

203a. Electromagnetic Waves.
The phenomena of diffraction, interference and polarization of light as described by the electromagnetic theory. Three lectures and one laboratory per week. Prerequisite: Mathematics 13. Offered in alternate years. *Four semester hours.* Mr. Heberle.

205a. Electronic Devices and Circuits. Not offered, 1966-67.
Principles of electron tubes and transistors, with emphasis on design of electronic circuits. Three lectures and one laboratory per week. Prerequisite: Physics 101 or consent of the instructor. Offered in alternate years. *Four semester hours.* Mr. Anderson.

206a. Modern Physics.
An introduction to the quantum nature of molecules, atoms and nuclei. Special relativity. The old quantum theory. The correspondence principle. Wave-particle duality.

The uncertainty principle. The wave equation. Required of physics majors. Prerequisite: Physics 160b and Mathematics 13 or consent of the instructor. *Three semester hours.*
Mr. Davies.

207b. Quantum Physics.
An introduction to quantum wave mechanics. Solutions of the Schrodinger equation. Operator techniques. Angular momenta. Approximation methods. Spectroscopy. Required of physics majors. Prerequisite: Physics 206a. *Three semester hours.* Mr. Kohin.

208b. Introduction to the Solid State. Not offered, 1966-67.
Crystal structure: symmetry and space groups. Chemical bonding: ionic and covalent crystals. Thermal and elastic properties. The band theory of metals and semi-conductors. Dielectric and magnetic properties. Low temperature properties, including superconductivity. Prerequisite: Physics 101 and Mathematics 13 or consent of the instructor. Offered in alternate years. *Three semester hours.* Mr. Anderson.

218. Physics and the Earth Sciences. Not offered, 1966-67.
The application of physics to problems in oceanography, seismology, and the atmosphere, with emphasis on the physics problems common to all. Selected readings are utilized. *Two semester hours each semester.* Mr. Hays.

230. Special Topics in Physics.
Independent studies in physics to provide for special needs. *Three or four semester hours each semester.* Staff.

235. Honors.
Independent experimental or theoretical research in physics. *Three semester hours each semester.* Staff.

301. Advanced Mechanics.
Lagrangian and Hamiltonian formulations. Kinematics and dynamics of rigid bodies. Special relativity. Canonical transformations. Hamilton-Jacobi theory. Statistical mechanics. *Three semester hours each semester.* Mr. Heberle.

304. Electrodynamics.
Maxwell's equations. Scalar, vector and retarded potentials. Electromagnetic radiation. Boundary value problems. *Two semester hours each semester.* Mr. Coulter.

305. Quantum Mechanics.
Wave mechanics and the Schrodinger equation. Stationary and time-dependent approximation methods. The matrix formulation. Scattering theory. *Four semester hours each semester.* Mr. Davies.

307. Theory of the Solid State. Not offered, 1965-66.
Application of quantum mechanics and group theory to solids. Thermal, electric, magnetic, and optical properties. Energy bands and their structure. Prerequisite: Physics 208a and 305. *Two semester hours each semester.*

308. Theory of Atomic and Molecular Spectra. Not offered, 1966-67.
The electronic configuration of atoms: the Pauli principle and the building-up principle. Fine structure and the spinning electron. The Zeeman and Paschen-Back effects. Nuclear effects: hyperfine structure. The structure and properties of molecules as revealed by

rotational, vibrational, and electronic spectra. Covalent and ionic bonds. Prerequisite: Physics 305 or consent of instructor. *Two semester hours each semester.* Mr. Kohin.

309. MAGNETIC RESONANCE. Not offered, 1966-67.
The theory of the electron spin and nuclear magnetic resonance experiments, particularly in solids. The spin Hamiltonian and the magnetic interaction between particles. Chemical bonds and their description by the molecular orbital method. Prerequisite: Physics 308. *Two semester hours each semester.* Mr. Kohin.

330. CURRENT PROBLEMS IN PHYSICS.
A specific topic in experimental physics is considered at the research level. Topics are selected on the basis of current interest. *Variable credit.* Staff.

335. TOPICS IN THEORETICAL PHYSICS.
An area of theoretical physics, chosen principally for students conducting theoretical research. Topics selected, as required, to emphasize special research areas or methods. *Variable credit.* Staff.

340. COLLOQUIUM.
Weekly lectures on various topics of current interest. *One semester hour each semester.* Staff.

350. RESEARCH.
Variable credit. Staff.

Psychology

DEPARTMENT FACULTY

Seymour Wapner, Ph.D., *G. Stanley Hall Professor of Genetic Psychology, Department Chairman*
Robert W. Baker, Ph.D., *Professor of Psychology*
Walter H. Crockett, Ph.D., *Professor of Psychology*
Tamara Dembo, Ph.D., *Professor of Psychology*
Bernard Kaplan, Ph.D., *Professor of Psychology*
Morton Wiener, Ph.D., *Professor of Psychology*
Clemens E. Benda, M.D., *Professor (affiliate) of Psychology*
Norman Geschwind, M.D., *Professor (affiliate) of Psychology*
Harold Goodglass, Ph.D., *Professor (affiliate) of Psychology*
David Moriarty, M.D., *Professor (affiliate) of Psychology*
Joseph Weinreb, M.D., *Professor (affiliate) of Psychology*
Roger Bibace, Ph.D., *Associate Professor of Clinical Psychology*
Donald M. Krus, Ph.D., *Associate Professor of Psychology*
Sebastiano Santostefano, Ph.D., *Associate Professor of Psychology*
Joachim F. Wohlwill, Ph.D., *Associate Professor of Psychology*
Ralph Rothstein, Ph.D., *Associate Professor (affiliate) of Psychology*
Henry D. Bates, Ph.D., *Assistant Professor of Psychology*
James D. Laird, Ph.D., *Assistant Professor of Psychology*
Donald G. Stein, Ph.D., *Assistant Professor of Psychology*
David A. Stevens, Ph.D., *Assistant Professor of Psychology*

Ina C. Uzgiris, Ph.D., *Assistant Professor of Psychology*
Arthur J. Bindman, Ph.D., *Lecturer in Psychology*
Donald Broverman, Ph.D., *Lecturer in Psychology*
Juris Draguns, Ph.D., *Lecturer in Psychology*
Edward L. Klaiber, M.D., *Lecturer in Psychology*
Oscar Resnick, Ph.D., *Lecturer in Psychology*
Anthony Varjabedian, M.D., *Lecturer in Psychology*
William Vogel, Ph.D., *Lecturer in Psychology*
Peter H. Wolff, M.D., *Lecturer in Psychology*
Melvin Barton, Ph.D., *Consultant to the Psychological Clinic*
Polly Deweese, M.S., *Consultant to the Psychological Clinic, Psychiatric Social Worker*
Victor H. Pentlarge, M.D., *Consultant to the Psychological Clinic, Psychiatrist*
Richard Rablen, Ph.D., *Consultant to the Psychological Clinic*
Bernard P. Rosenblatt, Ph.D., *Consultant to the Psychological Clinic*
Richard I. Roth, Ph.D., *Consultant to the Psychological Clinic*
Malcolm Sills, M.D., *Consultant to the Psychological Clinic*

UNDERGRADUATE PROGRAM

The department offers courses for students majoring in psychology, majors in allied fields and students wishing an orientation to the field of psychology as part of their general education.

Psychology 11 is prerequisite to all other psychology courses. Majors are required to take Psychology 11 and a minimum of two courses in the Experimental Psychology grouping (Psych. 201a, 203a or 203b, 204a or 204b, 210b, 222b, 236b). Of the two courses at least one must be 203a (b), or 204a (b). Permission of the instructor is required for each course in the Experimental Psychology grouping. In addition, each of these courses requires Psychology 160b and 161a or its equivalent (Psychology 161a may be taken concurrently); this requirement may be waived with permission of the instructor. Students preparing for graduate work should obtain a reading knowledge of French and German.

GRADUATE PROGRAM

The department admits to graduate work only those students who plan to enroll in the Ph.D. program on a full-time basis. A Master of Arts degree, based on an experimental thesis, ordinarily completed within the first two years of graduate work, is a requirement for admission to candidacy for the Ph.D. degree.

Master of Arts: The customary program is five courses, including experimental psychology, statistical methods and three additional courses, supplemented by the writing of a thesis in the area of special interest.

Doctor of Philosophy: The student is required to pass with distinction five courses during the first year of graduate study and a minimum of four courses during the second year. The University language requirement must be met by a knowledge of French, German or Russian. He is required, normally at the end of the second year, through written examination, to demonstrate his competence in psychology as a whole and in an area of specialization. Every graduate student must take part in the Teaching Apprenticeship Program as a requirement for the Ph.D. degree. In addition, the student is required to demonstrate his ability to conduct independent research as evidenced by the presentation of an acceptable dissertation. Research for the dissertation should normally be completed during the fourth year at the University; however, the length of the program will vary depending upon individual circumstances. At a final oral examination a student is required to defend his dissertation and to show his competence in the general field of psychology and in his area of specialization.

The overall aim of the graduate program is to provide the student with a general, integrated background covering the various areas of psychology. Within this emphasis more specialized training—with special stress on experimental analysis—is available in the following areas: perception, learning, thinking and problem-solving, language, social, and personality.

There are also three more formalized programs which provide specialized training in the areas of Clinical, Developmental and Rehabilitation Psychology.

Clinical Psychology Program. The department offers a four-year A.P.A.-approved program in clinical psychology leading to the degree of Doctor of Philosophy. Beyond the standards of proficiency in the general field of psychology expected of all students, the student in the Clinical Program will be required to demonstrate special mastery in the understanding of concepts in the clinical area and in the use of clinical methods. One year of internship is included in this four-year program. Provision is made for a wide variety of practical experiences in cooperating institutions, clinics and agencies. There are over 20 institutions and agencies in Worcester, Boston, Providence and surrounding areas which cooperate in providing such practicum and research facilities. In addition to the one-year internship, all students in the Clinical Program obtain a variety of practicum experiences in the Clark University Psychological Clinic throughout their enrollment in the graduate program. For further information, write to the director of the program: *Dr. Morton Wiener.*

The Psychological Clinic, directed by *Dr. Roger Bibace,* is operated in connection with the Clinical Psychology Program. For further information concerning the clinic, see that section in the catalog.

Post-doctoral training in clinical psychology is available. It aims to provide opportunities for clinical psychologists to develop further their clinical and research skills. Facilities of the Department, of Gardner State Hospital, and other agencies are utilized.

Developmental Psychology Program. This program is designed to train students in the comparative and experimental analysis of behavioral development. It emphasizes not only the study of human development over a wide age range, but also stresses the application of developmental principles, concepts and methods to problems of general psychology, psychopathology, social psychology, etc. For further information, write to the director of the program: *Dr. Joachim F. Wohlwill.*

Rehabilitation Research Training Program. In conjunction with all other areas of specialization, rehabilitation research training is available. Such training normally begins after the first two years of graduate work. This training is designed to prepare students for investigation of psychological problems as they occur in everyday life. Emphasis on development of novel techniques and concepts is a main feature of the training. An apprenticeship-practicum during which the various phases of research in real-life settings are examined under the guidance of a staff member is an integral part of the program. This program is especially pertinent to those who are interested in social-emotional and value problems of handicapped and non-handicapped people. For further information, write to the director of the program: *Dr. Tamara Dembo.*

Financial Aid. In addition to University scholarships, fellowships, teaching assistantships, and stipends, the department has available such forms of financial support as United States Public Health Service and Vocational Rehabilitation Administration training stipends, Veterans Administration assistantships and stipends, NDEA and NSF Traineeships, and research assistantships.

THE HEINZ WERNER INSTITUTE OF DEVELOPMENTAL PSYCHOLOGY

Associated with the department is the Heinz Werner Institute of Developmental Psychology, which has three aims: first, to integrate various research programs dealing with developmental problems; second, to bring to Clark University scholars, teachers, and research workers from disciplines for which developmental problems are pertinent such as anthropology, biology, and certain areas of medicine; third, to train research workers on post-doctoral levels in the comparative-developmental approach to behavior. Information concerning post-doctoral work at the Institute may be obtained by writing to *Dr. Bernard Kaplan.*

COURSES

11a. General Psychology.
Introduction to the principles of human behavior. *Three semester hours.* Mr. Wapner.

11b. General Psychology.
Introduction to the principles of human behavior. *Three semester hours.*
Messrs. Crockett, Baker, Bibace, Kaplan, Santostefano, Stein, Stevens and Miss Dembo.

12b. Psychoanalysis and the Concept of Man.
Psychoanalysis will be considered in relation to contemporary concepts of man. Discussions will center on the implications of psychoanalytic thought for the following areas: mental illness, childrearing practices, educational philosophy, learning theory, religion, philosophy, art, law, prejudice, and war. *Three semester hours.* Mr. Moriarty.

103b. Abnormal Personality.
Development of the abnormal personality and a survey of the major types of deviant behavior. Prerequisite: Psychology 172a. *Three semester hours.* Mr. Wiener.

150a. Introduction to Child Psychology: Physical and Intellectual Development.
The normal development of the child from infancy up to adolescence, with emphasis on the areas of physical and motor development, cognitive processes and language, and emotional and fantasy life. *Three semester hours.* Mrs. Uzgiris.

150b. Introduction to Child Psychology: Personality and Social Development of the Child.
The development of the child's personality and interpersonal behavior, in relation to family, peer group and culture. *Three semester hours.* Mrs. Uzgiris.

160b. Introduction to Quantitative Methods in Psychology.
Problems of psychological measurement and statistical evaluation of psychological data, at a descriptive level. (To be taken by all prospective majors in their sophomore year.) *Three semester hours.* Mr. Wohlwill.

161a. ADVANCED STATISTICAL METHODS IN PSYCHOLOGY.
Major principles and techniques of correlational analysis and statistical inference. (To be taken by all majors in their junior year.) *Three semester hours.* Mr. Wohlwill.

170b. SOCIAL PSYCHOLOGY.
The role of social factors in the behavior of individuals and of groups, including such topics as attitudes, prejudice, leadership and personality and culture. *Three semester hours.* Mr. Laird.

172a. PSYCHOLOGY OF PERSONALITY.
The various theoretical approaches to the study of personality, with emphasis on trait theories, typologies, field theory and psychoanalysis. Also considered are the determinants of personality development and methods of appraising personality. *Three semester hours.* Mr. Laird.

201a. LABORATORY IN SOCIAL PSYCHOLOGY.
Investigation of such phenomena as small group interaction, interpersonal perception, and attitude measurement and change. Prescribed experiments will be conducted in a series of problems, culminating in an original investigation and report of some problems of interest to the student. Prerequisite: Psychology 160b, 161a and 170b. *Four semester hours.* Mr. Crockett.

202a. PSYCHOLOGY OF THINKING.
Types of thought processes and methods of investigating them, with emphasis on concept formation, imagination, creative thought, reasoning and problem solving. *Three semester hours.* Mr. Bates.

203a, b. LABORATORY IN PERCEPTION.
The Laboratory Course in Perception will include investigation of sensory and perceptual phenomena in a variety of sense modalities. Theoretical and methodological issues will be considered in the context of specific experimentation. Prerequisite: Psychology 160b and 161a. (One semester course offered each semester.) *Four semester hours.* Mr. Krus.

204a, b. LABORATORY IN LEARNING.
Methods and findings in the study of learning, emphasizing their relation to theoretical issues. Prerequisite: Psychology 160b and 161a. (One semester course offered each semester.) *Four semester hours.* Mr. Stevens.

209a. DEVELOPMENTAL APPROACHES TO BEHAVIOR.
A critical examination of presuppositions, methods, concepts and empirical inquiries of those concerned with the development of behavioral systems. Implications of developmental conceptualization for all of the life sciences will be discussed. Psychological theories of Freud, Piaget and Werner will be given special emphasis. *Three semester hours.* Mr. Kaplan.

209b. DEVELOPMENTAL APPROACHES TO BEHAVIOR.
A seminar on selected theoretical and methodological issues pertaining to the developmental analysis of behavior. *Three semester hours.* Mr. Kaplan.

210b. LABORATORY IN DEVELOPMENTAL PSYCHOLOGY. Not offered, 1966-67.
The Laboratory Course in Developmental Psychology will be aimed at giving students direct experience with the phenomena described by Heinz Werner and Jean Piaget. The

course will exemplify concepts such as syncresis in different populations (young children, schizophrenics, mentally retarded, etc.) and at different developmental levels, for instance, at the level of action or of thought. (Students analyze cognitive processes, and conduct an experiment.) Prerequisite: Psychology 160b, 161a, and 209a. *Four semester hours.*
Mr. Bibace.

220a. MATHEMATICAL APPROACHES TO PSYCHOLOGY. Not offered, 1966-67.
Intensive analysis of several mathematical models used in psychology. Offered in alternate years. Prerequisite: Mathematics 12 or consent of the instructor. *Three semester hours.* Mr. Crockett.

222a. PHYSIOLOGICAL PSYCHOLOGY: INTRODUCTORY.
A survey of current problems and theory in physiological psychology. Emphasis will be placed upon the physiological bases of motivation, emotion, learning, and memory. Theoretical models of CNS activity will also be discussed. Prerequisite: Psychology 160b, 161a. *Three semester hours.* Mr. Stein.

222b. LABORATORY IN PHYSIOLOGICAL PSYCHOLOGY.
Introduction to methods and techniques used to study the physiological bases of behavior. The student will participate in nerve stimulation and recording, electrode implantation, brain lesions, chemical and electrical stimulation of the brain, anatomy and neurohistological examination. Individual and group research projects will be encouraged. Lecture and demonstrations. Prerequisite: Introductory physiological psychology. Limited enrollment. *Four semester hours.* Mr. Stein.

225a. SEMINAR IN REHABILITATION PSYCHOLOGY.
Psychological problems in everyday life situations, such as problems of physically disabled, mentally retarded, the aged, the poor, etc., will serve as topics. The primary focus is interpersonal relationships and value problems. *Two semester hours.* Miss Dembo.

226b. SEMINAR IN INDIVIDUAL DIFFERENCES.
An examination of the evidence for and explanation of individual differences in both cognitive functioning and personality. Particular attention will be given to the problem of sex differences. *Two semester hours.* Mr. Draguns.

231a. SEMINAR IN THE HISTORY OF PSYCHOLOGY. Not offered, 1966-67.
Historical development of theories and methods in psychology. Prerequisite: consent of the instructor. *Two semester hours.* Mr. Kaplan.

232b. SEMINAR IN MODERN PSYCHOLOGICAL THEORIES.
Comparisons and evaluations of various modern theories in psychology. Prerequisite: consent of the instructor. *Two semester hours.* Mr. Bates.

236b. LABORATORY IN CHILD PSYCHOLOGY.
Survey of research methods used in the study of children, with particular emphasis on observational techniques. Lecture: 2 hours; Laboratory: 3 hours; Prerequisite: Psychology 160b, 161a, 150a or 150b. *Four semester hours.* To be announced.

237b. INTERPERSONAL PERCEPTION.
A detailed examination of various theoretical approaches to phenomena of interpersonal perception. Included will be the predictions of role theory, balance and consistency

theories, and various personality theories. The empirical evidence relative to these predictions will be discussed; particular attention will be given observations that are not readily interpretable by social psychological theories. *Three semester hours.* Mr. Crockett.

296. DIRECTED RESEARCH IN PSYCHOLOGY.
Independent research for qualified students not in the honors program. (Open to seniors and, in exceptional circumstances, to juniors with the approval of the staff member who will direct their study.) *Three semester hours each semester.* Staff.

297. DIRECTED READINGS IN PSYCHOLOGY.
Independent study for qualified students not in the honors program. (Open to seniors and, in exceptional circumstances, to juniors with the approval of the staff member who will direct their study.) *Three semester hours each semester.* Staff.

298. HONORS IN PSYCHOLOGY: Junior year.
During the Fall semester, junior honors students will meet in weekly seminars conducted by members of the staff to familiarize themselves with the major fields within the discipline of psychology, to plan their survey of the literature in an area of interest to them, and to discuss their readings. During the Spring semester, students will carry out independent intensive readings on a particular problem of interest to them, in individual consultation with a member of the staff. *Three semester hours each semester.* Staff.

299. HONORS IN PSYCHOLOGY: Senior year.
Students will carry out a research project under the direction of a member of the staff. *Three semester hours each semester.* Staff.

301. EXPERIMENTAL METHOD IN PSYCHOLOGY.
Experimental Method considered generally and in its application to problems of perception. Lecture: 2 hours; Laboratory: to be arranged. Mr. Wapner.

302. STATISTICAL METHODS.
Descriptive statistics, statistical inference and experimental design in psychology. Mr. Crockett.

304a. PHYSIOLOGICAL ASPECTS OF BEHAVIOR, I. Not offered, 1966-67.
Neuro-anatomy as related to behavior. Offered in alternate years. To be announced.

305b. PSYCHOPHYSIOLOGY OF SENSORY PROCESSES. Mr. Vogel.

306b. PSYCHOBIOLOGICAL FOUNDATIONS OF BEHAVIOR. Mr. Geschwind.

✓ **307a. PHYSIOLOGICAL PSYCHOLOGY: ADVANCED.**
A survey of current problems, theories and controversies in physiological psychology. Course orientation will be similar to the introductory course with more attention to critical experiments and controversies. Also considered will be the neuroanatomy and neurophysiology of important CNS structures. Prerequisites: Knowledge of experimental method in psychology; previous experience in either perception, learning or comparative. Mr. Stein.

310. APPRENTICESHIP IN REHABILITATION: INTRODUCTORY. Miss Dembo.

311. CLINICAL METHODS, I.
Theory, administration, scoring and interpretation of clinical-psychological tests, objec-

tive and projective, with special emphasis on analysis of cognitive functioning, with practicum. Mr. Bates.

312a. THEORIES OF DEVIANT BEHAVIOR.
Deviant behavior as viewed by various theories. Clinical and experimental evidence is examined. Mr. Bibace.

313b. PRINCIPLES AND CONCEPTS UNDERLYING PSYCHOLOGICAL TESTS.
Problems of psychological assessment by non-projective tests. Mr. Broverman.

315a. ADVANCED CHILD PSYCHOLOGY: GENERAL-EXPERIMENTAL.
The experimental study of basic processes of child behavior (perception, learning, thinking, etc.) and of major dimensions of developmental change. Mr. Wohlwill.

315b. ADVANCED CHILD PSYCHOLOGY: PERSONALITY-SOCIAL.
Study of the child's personality and social development with particular attention to research concerning itself with antecedent-consequent relationships. To be announced.

316a. RESEARCH METHODS IN THE STUDY OF CHILDREN.
Survey of methods used in the study of children, with emphasis on the measurement of personality characteristics and on observational techniques. Offered in alternate years. Mrs. Uzgiris.

316b. METHODOLOGICAL PROBLEMS IN DEVELOPMENTAL PSYCHOLOGY.
Questions of scientific method, research strategy, quantitative analysis, etc., arising in developmental research, with particular reference to the study of developmental change in behavior. Offered in alternate years. Mr. Wohlwill.

317a. BEHAVIOR IN INFANCY. Not offered, 1966-67.
Offered in alternate years. Mr. Wolff.

318. SEMINAR IN PSYCHOLOGY OF INTERPERSONAL RELATIONSHIPS AND REHABILITATION.
Value problems pertinent to interpersonal relations will be discussed, including value possessions, value losses, regaining of values and adjustment to value losses. Offered in alternate years. Miss Dembo.

319. SEMINAR IN TOPOLOGICAL PSYCHOLOGY AND REHABILITATION. Not offered, 1966-67.
Offered in alternate years. Miss Dembo.

320. ADVANCED SEMINAR ON ORGANISMIC-DEVELOPMENTAL APPROACHES TO BEHAVIOR.
Basic categories of the organismic-developmental approach to life sciences, with examination of the application of these categories to a wide range of problem areas in psychology. Mr. Kaplan.

321. HIGHER MENTAL PROCESSES. Not offered, 1966-67.
Theory and experimental research pertaining to such functions as remembering, classifying, problem-solving, reasoning, concept-forming, symbolization, etc. Mr. Kaplan.

323. PSYCHOLOGY OF LEARNING.
Theoretical viewpoints and experiments in the field of learning. Mr. Stevens.

324. THEORIES OF PERSONALITY.
Comparison of various theoretical approaches to the study of personality. Mr. Wiener.

325. ADVANCED SOCIAL PSYCHOLOGY. Not offered, 1966-67.
Intensive analysis of various theoretical systems in social psychology. Mr. Crockett.

327a. PSYCHOANALYTIC EGO PSYCHOLOGY.
After a systematic review of Freud's major assumption, propositions, and concepts, emphasis is given to select psychoanalytic writings since 1940 concerned with metapsychology, concepts of ego and adaptation, and psychoanalysis as a developmental psychology. Mr. Santostefano.

327b. THE BIOLOGICAL ASPECTS OF HUMAN DEVELOPMENT. Mr. Klaiber.

328b. COMPARATIVE ANIMAL BEHAVIOR.
Theories and research in ethology and comparative psychology, including problems of causation, development and evolution, will be discussed. *Three semester hours.* Mr. Stevens.

331. CLINICAL METHODS, II.
Application of various clinical methods in the assessment of personality. Mr. Goodglass.

332a. THEORIES OF PSYCHOTHERAPY.
Comparison of various theoretical approaches to problems of psychotherapy. Mr. Wiener.

333b. LEARNING APPROACHES TO PSYCHOTHERAPY.
A critical survey of the applications of contemporary learning theory principles and empirical findings to the modification of deviant behavior. Selected problems pertaining to individual treatment and token-economies. Mr. Bates.

337b. SEMINAR ON PROBLEMS IN CHILD AND DEVELOPMENTAL PSYCHOLOGY. Mrs. Uzgiris.

346b. DEVELOPMENTAL PSYCHOLOGY AND PSYCHOANALYSIS. Not offered, 1966-67.
Offered in alternate years. Mr. Bibace.

347b. DEVELOPMENTAL APPROACHES TO COGNITIVE ASSESSMENT AND BEHAVIOR CHANGE.
Clinical applications of Werner's comparative-developmental approach to cognitive assessment and behavior change. The contributions of Kephart, Rabinovitch, Rey, Zazzo, and others will also be covered. A clinical or experimental study will be required. Mr. Bibace.

348. CLINICAL PSYCHOLOGY AND THE COMMUNITY.
Clinical psychology and the study of the development of the normal child in community settings. Mr. Laird.

350. APPRENTICESHIP IN REHABILITATION: ADVANCED. Miss Dembo.

351. CLINICAL METHODS, III.
Integration of various methods in assessment of personality and behavior. Mr. Rothstein.

352. CLINICAL METHODS, IV.
Application of theoretical principles to psychotherapy. Mr. Weinreb.

353b. PRACTICE AND THEORY IN CLINICAL CHILD PSYCHOLOGY.
Demonstration and theoretical consideration of traditional objective and projective tests and of recently developed situational and cognitive tests useful in assessing coping styles and cognitive controls in children. Select infants and children from clinic and normal populations serve as the subject matter. Emphasis is given to clinical technique and conceptual integration of data from the vantage point of psychoanalytic ego psychology. Mr. Santostefano.

356a. PSYCHOPATHOLOGY OF CHILDHOOD.
Offered in alternate years. Mr. Benda.

357. PSYCHOLOGY OF SYMBOLIC BEHAVIOR.
Basic aspects of symbolic behavior: theory, experimental research, ontogenesis, psychopathology of symbol formation. Mr. Kaplan.

364b. SELECTED PROBLEMS IN PSYCHOPHARMACOLOGY. Mr. Krus and Visiting Staff.

380. RESEARCH IN PSYCHOLOGY.
Direction of individual students in their research. Staff.

381. READINGS IN PSYCHOLOGY.
Critical analysis of literature in areas related to individual research. Staff.

385. PARTICIPATION IN PSYCHOLOGICAL CLINIC, I.
Introduction and individual intelligence testing.
Mr. Bates, Mr. Bibace, Mr. Rablen, Mr. Rothstein.

386. PARTICIPATION IN PSYCHOLOGICAL CLINIC, II.
Personality evaluation by tests.
Mr. Bates, Mr. Bibace, Mr. Laird, Mr. Rablen, Mr. Rothstein.

387. PARTICIPATION IN PSYCHOLOGICAL CLINIC, III.
Psychotherapy and consulting.
Mr. Bibace, Mr. Laird, Mr. Moriarty, Mr. Pentlarge, Mr. Santostefano, Mr. Weinreb, Mr. Wiener.

388. PARTICIPATION IN PSYCHOLOGICAL CLINIC, IV.
Personality evaluation by interview; psychotherapy.
Mr. Bibace, Miss Deweese, Mr. Moriarty, Mr. Pentlarge, Mr. Santostefano, Mr. Weinreb, Mr. Wiener.

389. INTERNSHIP. Staff.

DEPARTMENTAL COLLOQUIUM Visiting Lecturers.

WORKSHOPS
Conducted annually in such areas as comparative-animal psychology, scaling theory, factor analysis, rehabilitation, cultural anthropology, ethnolinguistics, pathology of language. Visiting Lecturers.

Romance Languages

DEPARTMENT FACULTY

J. Richard Reid, Ph.D., *Professor of Romance Languages, Department Chairman*
Raymond E. Barbera, Ph.D., *Associate Professor of Romance Languages*
J. Fannin King, M.A., *Associate Professor of Romance Languages*
Theodore Nicol, Ph.D., *Associate Professor of Romance Languages*
William S. Shiver, Ph.D., *Assistant Professor of Romance Languages*
Marian M. Walter, Ph.D., *Assistant Professor of Romance Languages*
Nancy M. Baum, M.A.Ed., *Instructor in Romance Languages*

UNDERGRADUATE PROGRAM

The department offers courses in the languages and literatures of France, Spain and Spanish America. These courses fall into two groups: lower level—French and Spanish 11 and 12, and upper level—all other Romance language courses.

In the lower level the primary aim is the mastery of the skills of communication in a language, with a view to its effective use for a variety of possible ends. These skills include reading, writing, speaking and understanding as well as what may be called basic literacy in the language.

In the upper level, the primary aim is an acquaintance in depth with a foreign civilization, principally through a study of its literature but with attention also to other aspects of its culture and to the further perfection of linguistic competence. The courses in literature are complemented by others in civilization and in advanced composition, conversation and phonetics.

A major in Romance languages must comprise:

1. Twenty-four semester hours to be chosen from French 137, 141, 147a, 151a, 152a, 153b, 154b and 250; Spanish 137, 141, 142a, 143a, 144b, 145b and 250; Romance Languages 248b.
2. French 113 or the equivalent.
3. History 10, or the equivalent, normally to be completed by the end of the sophomore year.
4. At least 6 semester hours, to be approved by the department, in non-Romance literature.

The Romance language major program may be in either French or Spanish exclusively, or include both languages in any proportion to suit the needs and desires of the individual. Major students are urged, however, to acquire a basic competence in both languages even though specializing in only one.

Students intending to major in Romance languages should consult the department chairman. An honors program in Romance languages is available to qualified upperclassmen.

LANGUAGE LABORATORY

A modern electronic language laboratory is available for class instruction, independent study and self-appraisal. Use of the laboratory is required of students in the lower level and "137" courses in French and Spanish, and available to others. See the section on "Tuition and Other Charges" for the laboratory fee.

DEPARTMENTAL INTERNSHIP PROGRAM

The department cooperates with the Department of Education in a graduate program of preparation of teachers of Romance languages, leading to the degree of Master of Arts in Education. Participants carry appointment as Teaching Assistant Scholars and as Departmental Interns in Romance Languages. Normally requiring two years, the program consists of half-time study in education and Romance languages and literatures, and half-time devoted to supervised teaching and other assistance to the Department of Romance Languages.

COURSES IN FRENCH

11. ELEMENTARY.

For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Meets each week: twice in General Session, twice in small Drill Sessions, three half-hour periods of individual work in the language laboratory. Laboratory fee. Open to freshmen. Indivisible course. *Three semester hours each semester.* Staff.

12. INTERMEDIATE.
Review of the elements and further development of communication skills aimed at a basic literacy. Conducted in French. Meets each week: twice in General Session, once or twice in small Drill Sessions, three half-hour periods of individual work in the laboratory. Laboratory fee. Prerequisite: French 11 or equivalent skill in the language, to be determined by a placement test. Open to freshmen. *Three semester hours each semester.* Staff.

113. INTRODUCTION TO FRENCH CIVILIZATION.
A selective survey of the history, art, literature and music of France, from the Middle Ages to modern times. An elementary knowledge of French is desirable but not required. Admission is subject to the approval of the instructor. For students who entered Clark before September, 1964, this course may be counted in fulfillment of the general requirement in fine arts. The course may not, however, be counted in fulfillment of the foreign language requirement. Offered in alternate years. *Three semester hours each semester.* Mr. Nicol.

*131. (FORMERLY FRENCH 14) READINGS IN FRENCH LITERATURE.
Third-year level. The emphasis in the first semester is on reading as communication, with analysis and practice of the techniques of effective reading in French. The emphasis in the second semester is on an understanding of a number of novels and plays selected for their literary excellence and broad appeal. Prerequisite: French 12 or equivalent skill in the language, to be determined by a placement test. Open to freshmen. *Three semester hours each semester.* Staff.

*132a. FRENCH EXISTENTIALIST AUTHORS OF THE TWENTIETH CENTURY.
Third-year level. Prerequisite: First semester of French 131, or grade of B— or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of the instructor. *Three semester hours.* Mr. Nicol.

*133b. LANDMARKS OF FRENCH LITERATURE.
Third-year level. Study of a small number of masterpieces to provide an introduction to the various periods and styles of French literature. Prerequisite: first semester of French 131, or grade of B— or higher in French 12, or equivalent skill, to be determined by a placement test. *Three semester hours.* Mr. Nicol.

*137. (FORMERLY FRENCH 13) ORAL AND WRITTEN FRENCH.
The aim of this third year course throughout is the perfecting of skills in communication both oral and written. In the first semester, particular attention is given to the sounds of French and to its rhythm and melodic patterns. In the second semester, increasing attention is given to grammatical patterns and written French and to fluency in the spoken language. Conducted in French. Prerequisite: Grade of B— or higher in French 12, or equivalent skill in the language to be determined by placement test. Two

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*All courses whose numbers begin with 13, 14, or 15 satisfy the foreign language and literature requirement for the degree of Bachelor of Arts.

regular class periods, one two-hour session and three half-hour periods in the laboratory per week. Laboratory fee. Admission is subject to the consent of the instructor. *Three semester hours each semester.* Mr. King.

*141. (FORMERLY FRENCH 114) GENERAL VIEW OF FRENCH LITERATURE.
An interpretation of the main currents of French literature. Each period is studied by concentrating attention on a limited number of works and authors best bringing to focus the characteristics of the period. Conducted in French. Prerequisite: Grade of B— or higher in French 131 or 137, or the equivalent. *Three semester hours each semester.* Mr. King.

*147b. (FORMERLY FRENCH 123a) ADVANCED COMPOSITION AND STYLISTICS.
Introduction to the problems of stylistics with a study of selected grammatical topics. Conducted in French. Prerequisite: Grade of B— or higher in French 137, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Nicol.

*151a. THE MIDDLE AGES AND THE RENAISSANCE.† Not offered, 1966-67.
Emphasis is upon developing an understanding of the philosophical, religious and social attitudes of the Middle Ages and the Renaissance, with due attention to the facts of literary history. Conducted in French. Prerequisite: Grade of B— or higher in French 141, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. King.

*152a. CLASSICISM.†
A study of outstanding literary works, drawn principally but not exclusively from the age of Louis XIV, to illustrate the esthetic and intellectual nature of the classical point of view as it persists in the French thought of various periods. Conducted in French. Prerequisite: Grade of B— or higher in French 141, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Nicol.

*153b. ROMANTICISM AND REALISM.†
A study of outstanding literary works, drawn principally but not exclusively from the late 18th and 19th centuries, to illustrate the esthetic and intellectual climates and the literary techniques generally described as romantic or realistic. Conducted in French. Prerequisite: Grade of B— or higher in French 141, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Nicol.

*154b. THE MODERN PERIOD.† Not offered, 1966-67.
A study of a few outstanding dramatists, novelists and poets to illustrate the highly varied literary attitudes characteristic of 20th century French literature. Conducted in French. Prerequisite: Grade of B— or higher in French 141, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Nicol.

ROMANCE LANGUAGES 248b. (FORMERLY ROMANCE LANGUAGES 124b) COMPARATIVE FRENCH AND SPANISH PHONOLOGY.
The elements of general phonetics and phonemic theory, followed by a detailed study of the sound-systems of French and Spanish, and practical application to pronunciation practice. Open to juniors, seniors and graduate students, with the consent of the instructor. Offered in alternate years. *Three semester hours.* Mr. Reid.

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†For French 151a, 152a, 153b and 154b a certain historical and analytical perspective such as is provided by French 141 is presupposed. These courses are planned so that they need not be taken in chronological order but may be taken at the student's convenience. Attention is given to the social forces and movements underlying the attitudes whose literary manifestations are under study.

FRENCH 250. SPECIAL TOPICS IN FRENCH. Staff.

ROMANCE LANGUAGES 270. (EDUCATION 270) THE TEACHING OF ROMANCE LANGUAGES. For complete description, see Education 270. *Three semester hours.* Mr. Reid, Mrs. Walter and Staff.

ROMANCE LANGUAGES 271. (EDUCATION 271) THE TEACHING OF ROMANCE LANGUAGES. Advanced. (See Education 271). *Three semester hours each semester.* Mr. Reid, Mrs. Walter and Staff.

COURSES IN SPANISH

11. ELEMENTARY.
For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Meets each week: twice in General Session, twice in small Drill Sessions, three half-hour periods of individual work in the language laboratory. Laboratory fee. Open to freshmen. Indivisible course. *Three semester hours each semester.* Staff.

12. INTERMEDIATE.
Review of the elements and further development of communication skills aimed at a basic literacy. Conducted in Spanish. Meets each week: twice in General Session, once or twice in small Drill Sessions, three half-hour periods of individual work in the laboratory. Laboratory fee. Prerequisite: Spanish 11 or equivalent skill in the language, to be determined by a placement test. Open to freshmen. *Three semester hours each semester.* Staff.

*131. (FORMERLY SPANISH 14) READINGS IN SPANISH AND SPANISH-AMERICAN LITERATURE. A third-year course. The emphasis in the first semester is on reading as communication, with analysis and practice of the techniques of effective reading in Spanish; in the second semester, on the understanding of a number of works of high literary quality and broad appeal. Readings from Spain and one American nation, selected with a view to developing insight into the respective cultures. Prerequisite: Spanish 12 or the equivalent skill in the language, to be determined by a placement test. Open to freshmen. *Three semester hours each semester.* Mr. Reid.

*137. (FORMERLY SPANISH 13) ORAL AND WRITTEN SPANISH.
A third-year course. A rapid intensive review of grammar; the elements of phonetics; exercises in composition and pronunciation; conversational practice. Conducted in Spanish. Admission is subject to the approval of the instructor. Prerequisite: Grade of B— or higher in Spanish 12, or equivalent skill in the language, to be determined by a placement test. Offered in alternate years. Two regular class periods, one two-hour session, and one to two hours in the laboratory per week. Laboratory fee. *Three semester hours each semester.* Mr. Barbera.

*141. (FORMERLY SPANISH 114) THE LITERATURE OF SPAIN. Not offered, 1966-67.
A general view of Spanish literature with emphasis on the origins and development of the novel and drama, culminating in the masterworks of the nineteenth century. Atten-

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*All courses whose numbers begin with 13, 14, or 15 satisfy the foreign language and literature requirement for the degree of Bachelor of Arts.

tion is given to political and cultural background. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours each semester.* Mr. Barbera.

*142a. EARLY SPANISH LITERATURE FROM THE *Poema de Mio Cid* TO THE *Celestina*.
This course will emphasize the nature of epic poetry, the first manifestation of "realism" in the literature of the Middle Ages, and will culminate in the hybrid masterpiece, the *Celestina,* a combination of novel and drama, unique in the history of European literature. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Barbera.

*143a. CERVANTES. Not offered, 1966-67.
This course will concentrate upon *Don Quixote* with excursions into other writings of Cervantes illustrating the changes in his literary development. Cervantes' debt to previous literary works will be studied. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Barbera.

*144b. THE DRAMA OF THE SIGLO DE ORO.
Besides studying the major figures such as Lope de Vega, Tirso de Molina, Alarcon and Calderón de la Barca, there will be some study of the origins of the drama in Spain. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Barbera.

*145b. THE MODERN NOVEL. Not offered, 1966-67.
A number of 19th century novels will be read. The 20th century will be represented by such outstanding novelists as Galdos (who bridges the 19th and 20th centuries), Unamuno, Valle-Inclán and Baroja. Prerequisite: Grade of B— or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years. *Three semester hours.* Mr. Barbera.

ROMANCE LANGUAGES 248b. (FORMERLY ROMANCE LANGUAGES 124b) COMPARATIVE FRENCH AND SPANISH PHONOLOGY.
For complete description, see Romance Languages 248b under Courses in French.
Mr. Reid, Mrs. Walter and Staff.

SPANISH 250. SPECIAL TOPICS IN SPANISH. Staff.

ROMANCE LANGUAGES 270. (EDUCATION 270) THE TEACHING OF ROMANCE LANGUAGES.
For complete description, see Education 270. Mr. Reid, Mrs. Walter and Staff.

ROMANCE LANGUAGES 271. (EDUCATION 271) THE TEACHING OF ROMANCE LANGUAGES.
Advanced. (See Education 271). Mr. Reid, Mrs. Walter and Staff.

Russian

DEPARTMENT FACULTY

Larisa Quincy-Sorokin, M.A., *Assistant Professor of Russian*

UNDERGRADUATE PROGRAM

Courses are offered in Russian language and literature to provide a competent reading and speaking knowledge of the language essential for carrying on advanced study in many fields, to fulfill the language requirement for the degree of Bachelor of Arts and to provide an introduction to Russian civilization.

11. INTRODUCTORY RUSSIAN.
An introduction to the written and spoken language. Three class periods and three half-hour laboratory sessions per week. Laboratory fee. Open to freshmen. Indivisible course. *Three semester hours per semester.* Mrs. Sorokin.

12. INTERMEDIATE RUSSIAN.
Advanced Russian grammar. Continued emphasis upon reading and conversation. Three periods and three language laboratory sessions per week. Laboratory fee. Open to qualified freshmen. *Three semester hours each semester.* Mrs. Sorokin.

13. ADVANCED RUSSIAN.
Intensive reading of contemporary and literary sources. Advanced composition and conversation. *Three semester hours each semester.* Mrs. Sorokin.

130. LITERARY ANALYSIS OF SELECTED WORKS OF RUSSIAN LITERATURE.
Not offered, 1966-67.
In Russian. Prerequisite: Russian 13 or equivalent with permission of the instructor. *Three semester hours each semester.* Mrs. Sorokin.

179. SURVEY OF RUSSIAN LITERATURE. Not offered, 1966-67.
Course provides a complete survey of Russian literature from its inception in the 11th century to the Revolution of 1917. Major trends in the development of the medieval literary tradition will be illustrated, leading into the "Golden Age" of Russian letters in the 19th century. Concentrated attention will be given to the evolution of the realistic tradition in Russia, culminating in the works of Tolstoy, Dostoyevsky, Chekhov and Gorky. Twentieth century literary movements of Symbolism, Acmeism and Futurism will be discussed leading into the material treated in the course on Soviet Literature 180 offered in alternate years. Given in English. *Three semester hours each semester.*
Mrs. Sorokin.

180. SOVIET LITERATURE. Not offered, 1966-67.
In translation. Poems, plays, and novels of selected Soviet authors considered as works of literary art and as illustrations of the social, economic, and political conditions of the period. *Three semester hours each semester.* Mrs. Sorokin.

181b. DIRECTED READINGS IN RUSSIAN LITERATURE. Not offered, 1966-67.
Conducted in English. Study of selected masterpieces of Russian literature of the 19th century. Prerequisite: Russian 179 or consent of the instructor. *Three semester hours.*
Mrs. Sorokin.

191. SEMINAR IN SOVIET LITERATURE.
Major works which contribute to an understanding of Soviet literary, cultural and intellectual trends will be read and discussed. Prerequisite: consent of the instructor. *Three semester hours each semester.* Mrs. Sorokin.

Sociology

DEPARTMENT FACULTY

Philip G. Olson, Ph.D., *Associate Professor of Sociology, Department Chairman*
Frederick W. Killian, LL.B., *Associate Professor of Sociology*
Willard D. Callender, Jr., M.A., *Assistant Professor of Sociology*
Charles W. Estus, Ph.D., *Assistant Professor of Sociology*

UNDERGRADUATE PROGRAM

An undergraduate major in sociology is designed to provide the student with an understanding of the intellectual tradition which has focused on description and explanation of human society, its structure, organization, and process. Emphasis is on both theoretical aspects of society in general and specifically the nature of American society. Requirements for a major in sociology consist of 24 semester hours in sociology, including Sociology 11b and 290, and 18 semester hours in related fields. Related fields are defined by the department and require departmental approval.

An honors program of independent study and research is available to qualified upperclassmen. Ordinarily a candidate will begin honors work in the second semester of the junior year by enrolling in Sociology 28.

A program of field research for undergraduates is available through a National Science Foundation grant. Participation is limited to qualified upperclassmen who enroll in Sociology 21a and 267b.

GRADUATE PROGRAM

Graduate study leading to the Master of Arts degree is offered. The program emphasizes theory and research methods and the following substantive areas: Law and society, community and urban society. Field research as part of the thesis preparation is normally done under the program of research conducted by members of the department.

COURSES

11b. INTRODUCTION TO SOCIOLOGY.
An examination of the basic concepts and theories of society as derived from the classic tradition in sociology and their application to an analysis of contemporary American society. Open to Freshmen. *Three semester hours.* Mr. Callender.

12a. SOCIAL ANTHROPOLOGY.
An analysis of primitive society with emphasis on social structure, including religion, kinship and economics. The relation between culture and personality and the processes of social change in the primitive world are explored. Open to Freshmen. *Three semester hours.* Mr. Olson.

13b. INDIVIDUAL AND SOCIAL STRUCTURE.
An examination of the social contexts out of which personality types emerge; the development of the social mind and self; theories of interpersonal behavior and the presentation of self; the relation between individual behavior and social structures. An analysis of the role of history, society, and psychological factors in the development of personal identity. Prerequisite: either Sociology 11b, 12a, or Psychology 11. *Three semester hours.* Mr. Estus.

14a. SOCIAL ORGANIZATION.
Social structure of major social systems: government, business, education, religion. Also selected special systems: science, welfare, leisure. Emphasis on roles of bureaucracy, informal groups, social movements and publics in these systems. *Three semester hours.* Mr. Callender.

15. RELIGION AND SOCIETY.
First semester: An analysis of the relationship between religious institutions and society in both its functional and dysfunctional aspects. Special attention will be given to the various ways in which this relationship has been understood by the sociologist. Second semester: An examination of a social psychological model of the self-system for application to phenomena traditionally characterized as religious. Special attention will be given to the desirability of introducing a concept of the religious or its equivalent into current social-psychological theories of the self. Prerequisite, first semester: Sociology 11b or 12a; second semester: Sociology 13b or its equivalent. *Three semester hours each semester.* Mr. Estus.

17b. AMERICAN MINORITY GROUPS.
Analysis of the major racial, ethnic and religious minorities in the U.S.A. Their structures, conflicts and changing relations with the dominant American culture. Social effects of alternative policies and strategies in contemporary minority group relations. *Three semester hours.* Mr. Callender.

21a. SOCIOLOGICAL ANALYSIS.
The philosophical and logical premises underlying the collection and interpretation of empirical data and the extension of these to sociological contexts. A brief survey of the major styles of quantitative social investigation will be made: research design, survey analysis, logic of quantitative measurement techniques, and the questionnaire. Some time will be spent on community study and participant-observer techniques with an attempt to relate the qualitative data which come from these styles to quantitative data. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Estus.

24b. THE COMMUNITY.
An analysis of community studies as the basis for understanding society, with particular reference to American society. The rise of central institutions and the transformation of community in twentieth century America: The links between community social structure and the total society. The historical decline of community and the emergence of pseudo-communities. The course will focus on a comparative analysis of the major American community studies. *Three semester hours.* Mr. Olson.

25. LAW AND SOCIETY.
First semester: Law, the social order, power and control. The basis of the legal order and legal institutions. Second semester: The problem situation, change and current legal problems. Prerequisite: First semester must be taken in order to register for the second semester and consent of the instructor. *Three semester hours each semester.* Mr. Killian.

255. SOCIOLOGY AND LAW.
A study of the application of social theory and of sociological theory to the analysis of law and legal institutions. The background of "sociological jurisprudence" and of "legal realism" in the nineteenth century and the early twentieth century. Emphasis on the work of Ehrlich, Max Weber, Durkheim, Parsons, Evan, Pound, Sorokin, Maine, Pollock

and Maitland, Hoebel, Llewelyn, Riesman, Jerome Frank, John Chipman Gray, Jerome Hall, and other Europeans and Americans. The second semester will include current trends in criminological theory. Prerequisite: consent of the instructor. *Three semester hours each semester.* Mr. Killian.

26b. URBAN CULTURE. Not offered, 1966-67.
The growth and development of urbanism in Western Civilization and its impact on civilization. An analysis of the complexities of urban life; the structural components and varieties of life styles found in American cities. The impact of urbanism on American society. *Three semester hours.* Mr. Olson.

267b. CONTEMPORARY SOCIOLOGICAL ISSUES.
For advanced undergraduate and graduate students. An advanced analysis of sociological theory and field research. Open only to National Science Foundation participants. *Three semester hours.* Mr. Olson.

28. HONORS.
Three semester hours each semester. Staff.

290a. CLASSICAL SOCIOLOGICAL THEORY.
An analysis of classical European theory, including Marx, Weber, Freud, Durkheim, Simmel and Mannheim, emphasizing the historical, dramatistic, systematic elements in their work. Prerequisites: four semesters of sociology and permission of the instructor. *Three semester hours.* Mr. Olson.

290b. CONTEMPORARY SOCIOLOGICAL THEORY.
An examination of the main theoretical and critical perspectives employed by American sociologists in their description and analysis of social life. The work of Parsons, Mills, Merton, Riesman, Goodman and others is evaluated in the light of the European tradition of social analysis and what it offers for an understanding of American society. Prerequisite: consent of the instructor. *Three semester hours.* Mr. Olson.

291a. SEMINAR: SUICIDE.
A detailed examination of the major sociological literature dealing with suicide. Emphasis will be on the classical studies and theoretical formulations and recent studies. Prerequisite: permission of the instructor. *Three semester hours.* Mr. Callender.

292. SEMINAR: INTERPERSONAL THEORY.
First semester: An examination of the social psychology of George Herbert Mead and later representatives of interpersonal theory leading to the development of a conceptual system for the analysis of interpersonal processes of interaction. Second semester: An examination of the application of interpersonal theories in social psychology to various areas of sociological analysis involving the problem of the relationship between self-systems and social-systems. Special attention will be given to such diverse phenomena as psychoanalysis, social change, brain-washing, socialization, and religious conversion. Prerequisite: permission of the instructor. *Three semester hours each semester.* Mr. Estus.

36. READINGS IN SOCIAL ANTHROPOLOGY.
One to three semester hours. Staff.

37. READINGS IN SOCIOLOGY.
One to three semester hours. Staff.

38. RESEARCH.
One to three semester hours. Staff.

380. RESEARCH SEMINAR.
Two semester hours. Staff.

39. THESIS.
Three semester hours. Staff.

390. THESIS SEMINAR.
Two semester hours. Staff.

DIRECTORIES

The Faculty

Members of the faculty and officers of instruction for 1965-66 are listed alphabetically with their titles, degrees and years at Clark University. Persons no longer on the faculty but who served during the previous year are included also.

President

HOWARD BONAR JEFFERSON, Ph.D., LL.D., L.H.D., Litt.D., President. A.B., Denison University, 1923; Ph.D., Yale University, 1929; LL.D., Denison University, 1948, Hillsdale College, 1952, Northwestern University, 1958; L.H.D., Colgate University, 1951, Assumption College, 1956; Litt.D., College of the Holy Cross, 1962. (1946-)

Emeriti

LEROY ALLSTON AMES, A.M., Professor of English Literature, Emeritus. (1908-44)

SAMUEL J. BRANDENBURG, Ph.D., Professor of Economics and Sociology, Emeritus. (1923-50)

JESSE LUNT BULLOCK, Ph.D., Professor of Chemistry, Emeritus. (1926-59)

GUY HARVEY BURNHAM, A.M., Instructor in Geography and Cartographer, Emeritus. (1922-66)

LYDIA PERRY COLBY, B.S., Registrar, Emeritus. (1932-66)

LORING HOLMES DODD, Ph.D., L.H.D., Professor of English and Art, Emeritus. (1910-49)

ROBERT STANLEY ILLINGWORTH, A.M., Ed.M., Professor of Speech and Drama, Emeritus. (1931-58)

HOMER PAYSON LITTLE, Ph.D., LL.D., Dean of the College and Professor of Geology, Emeritus. (1922-54)

DAVID POTTER, Ph.D., Professor of Biology, Emeritus. (1924-59)

PERCY MARTIN ROOPE, Ph.D., Professor of Physics, Emeritus. (1921-62)

SAMUEL VAN VALKENBURG, Ph.D., Professor of Geography, Emeritus. (1926-29, 1932-62)

Faculty and Officers of Instruction

VERNON AHMADJIAN, Ph.D., Professor of Botany. A.B., Clark University, 1952; A.M., 1956; Ph.D., Harvard University, 1960. (1959-)

JEREMY ANDERSON, Ph.D., Assistant Professor of Geography. A.B., Yale University, 1956; M.A., University of Washington, 1959; Ph.D., 1964. (1966-)

KARL OSCAR EMANUEL ANDERSON, Ph.D., Professor of English. A.B., Harvard University, 1927; A.M., 1928; Ph.D., 1942. (1945-)

ROY STUART ANDERSON, Ph.D., Professor of Physics. A.B., Clark University, 1943; A.M., Dartmouth College, 1948; Ph.D., Duke University, 1951. (1960-)

KARL JOHN RICHARD ARNDT, Ph.D., Professor of German. A.M., Washington University, 1928; Ph.D., The Johns Hopkins University, 1933. (1950-)

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ROBERT MOOERS HYDE, A.M., Executive Vice President. A.B., Rutgers University, 1947; A.M., University of Pennsylvania, 1949. (1954-)

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VERNON JONES, Ph.D., Professor of Educational Psychology. B.A., University of Virginia, 1920; M.A., 1920; M.A., Columbia University, 1924; Ph.D., 1926. (1926-)

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Dwight Erwin Lee, Ph.D., Jacob and Frances Hiatt Professor of European History, Dean of the Graduate School. A.B., University of Rochester, 1921; A.M., 1922; Ph.D., Harvard University, 1928. (1927-)

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Gilbert Scott Markle, M.A., Assistant Professor of Philosophy. B.S., Rensselaer Polytechnic Institute, 1961; Doctorat d'Université, University of Paris, 1963; Ph.D., Yale University, 1966. (1966-)

Arthur H. Martin, A.B., Instructor in English. A.B., Clark University, 1962. (1964-)

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David M. Moriarty, M.D., Professor (affiliate) of Clinical Psychology. M.D., Boston University, 1947. (1960-)

David Gillman Moulton, Ph.D., Associate Professor of Physiology. B.S., Glasgow University, 1954; Ph.D., University of Birmingham, 1958. (1965-)

John T. Murphey, B.S., Assistant Professor of Fine Arts. B.S. in Ed., Tufts University, 1959. (1965-)

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Academic Boards and Committees, 1965-66

The President is an *ex officio* member of all boards and committees.

PRESIDENT'S CABINET: Jefferson, *chairman,* Bloodgood, *secretary,* Baker, Campbell, Haas, Hyde, and Lee.

PERSONNEL AND ORGANIZATION: Jefferson, *chairman,* Crockett, *vice chairman and secretary,* Campbell, Seymour Hayden, Jordan, Lee, Nunnemacher, Raffman, and Wapner.

ADMINISTRATIVE: Campbell, *chairman,* Bloodgood, Baker, Colby, Haas, Hughes, Hyde, Potier, M. Savage, and Topkin.

GRADUATE BOARD: Jefferson, *chairman,* R. Anderson, Coffee, S. Cohen, Crockett, Seymour Hayden, Sherman Hayden, Jones, Jordan, Kegeles, Lee, Maxwell, R. Murphy, Nunnemacher, Olson, Reynolds, Stubbe, Sugihara, Van Tassel, Wapner, and Wiener.
Alternates: Bentley, M. Cohen, Curtis, Kaplan, Killian, Kohin, Rubinstein, Trachtenberg, and Warman.

CREDENTIALS: Lee, *chairman,* S. Cohen, Seymour Hayden, Sherman Hayden, Jones, Nunnemacher, Sugihara, Van Tassel, and Wapner.

ACADEMIC COUNCIL: Campbell, *chairman,* R. Anderson, Blinderman, Hollyday, Hyde, Kates, and Reynolds.

COLLEGE BOARD: Campbell, *chairman,* Baker, Barbera, Crockett, Frandsen, Hughes, Melder, M. Savage, and Topkin.

ADMISSIONS: Potier, *chairman,* Baker, Borg, Bentley, Campbell, M. Cohen, Cowardin, Curtis, Hilsinger, Hughes, Kennison, and Schroeder.

ATHLETICS: Warman, *chairman,* Baker, Granger, Hughes, Maxwell, and Stubbe.

SCHOLARSHIPS: Sherman Hayden, *chairman,* Barron, Baker, Campbell, Potier, and Van Tassel.

EVENING COLLEGE BOARD: Dolphin, *chairman,* Balko, Blinderman, Borg, Hargest, Hilsinger, Kaplan, Lee, and White.

LIBRARY: Cowardin, *chairman,* Ahmadjian, and Grob.

Scholars and Fellows Appointed Under Clark University Funds
1965-66

Alumni Association Fellow

Fiorello Ventresco, History, B.A., Boston University, 1959; M.A., University of Michigan, 1961.

George S. Barton Fellows

Bruce L. LaRose, Geography, B.A., Holy Cross College, 1964.
Robert W. Thompson, Geography, B.A., Worcester State College, 1965.

Eliza D. Dodge Fellow

Robert L. A. Adams, Geography, A.B., Williams College, 1961.

Joseph F. Donnelly Fellows

John L. Allen, Geography, B.A., University of Wyoming, 1963; M.A., *ibid.,* 1964.
Farouk El Gammal, Geography, B.A., Cairo University, 1959; M.A., Clark University, 1963.
Thomas E. Gledhill, Geography, B.S.Ed., Rhode Island College, 1964.
John Hung, Chemistry, B.S., National Taiwan University, 1961.
Neil H. J. McBain, International Relations, B.A., University of British Columbia, 1964; M.A., Lehigh University, 1965.
Gordon M. Marshall, Jr., History, B.A., Whittier College, 1964.
Hang Yul Rhee, International Relations, LL.B., Seoul National University, 1961; M.A., Columbia University, 1963.
Suk-han Shin, Geography, A.B., Seoul National University, 1954.
Csaba Sziklai, Psychology, University of Law & Political Science (Hungary), 1956; M.A., Clark University, 1961.
Robert W. Wilson, Chemistry, B.S.Ed., State University College of Education at Oswego, 1962.
Daniel M. Zavisza, Chemistry, B.S., Holy Cross College, 1960.

Austin S. Garver Scholars

Ann C. Brown, History, B.A., University of Maine, 1965.
Faye E. Crandall, Education, B.S., Bob Jones University, 1956; M.A.Ed., Clark University, 1959.
David Frederick, Economics, B.A., Wartburg College, 1965.
Harold Goree, Biology, B.S., University of Nebraska, 1964.
Kuo-Cheng Tseng, Economics, B.A., National Taiwan University, 1962.

George Frisbie Hoar Scholars

Kathleen M. Fitzgerald, History, B.A., Emmanuel College, 1965.
Mrs. Anna N. McGrath, Education, A.B., Clark University, 1951.
Joseph F. Mahoney, Economics, B.A., Holy Cross College, 1965.
Frederick E. Oxtoby, Geography, B.Ed., University of British Columbia, 1965.
Lee E. Phillips, Geography, A.B., Dartmouth College, 1965.
Dvora Rosenbach, Psychology, A.B., Bar Ilan University (Israel), 1961; M.A., Columbia University Teachers College, 1964; M.A., Clark University, 1965.
Sang-kuk Sim, Economics, A.B., Seoul National University, 1963.

Jennifer Smith, Education, B.A., Smith College, 1965.
Susumu Takeuchi, Geography, B.A., Waseda University, 1964.
Gary Whiteford, Geography, B.A., University of Toronto, 1964.

Graduate School Scholars and Fellows

Rohan S. Andrew, Geography, B.A., University of Nottingham, 1965.
Byoung Young Lee, Economics, A.B., Korea University, 1961.
Rudolf E. Russart, Economics, B.A., George Washington University, 1965.
Mei-Sheng Tai, Chemistry, B.S., National Taiwan University, 1962.

Charles H. Thurber Scholar

Neils West, Geography, B.A., Boston University, 1965.

Appointments From Other Funds, 1965-66

Danforth Foundation

Ogretta Humphries Vaughn, Psychology, B.S., Howard University, 1954; M.A., Clark University, 1959.

National Aeronautics and Space Administration

Robert A. Frenette, Mathematics, B.S., University of Nebraska, 1964.
Theodore P. Gannutz, Biology, A.B., University of Connecticut, 1963.
Joseph A. Keenan, S.J., Chemistry, B.S., Spring Hill College, 1964.
Thomas J. Whall, Chemistry, A.B., St. Anselm's College, 1964.
Peter D. Yedinak, Physics, B.Sc., Union College, 1962.

National Defense Education Act—Title IV Fellows in History

Thomas J. Baker, A.B., Tulane University, 1964.
Gerard W. Gawalt, B.A., Northeastern University, 1965.
Sidney Hart, B.A., Long Island University, 1964.
John B. Hench, B.A., Lafayette College, 1965.
John F. Meyers, A.B., University of Minnesota, 1963.
Donn F. Nibblett, A.B., Whittier College, 1963.
Edmund B. Thomas, B.S., John Carroll University, 1963; M.A., Kent State University, 1964.
John A. Worsley, A.B., Brown University, 1956.

National Institute of Mental Health

Theodore C. Crusberg, Chemistry, B.A., University of Connecticut, 1963; M.S., Yale University, 1964.
Elmer F. Morgan, Psychology, A.B., Kent State University, 1955; M.A., *ibid.,* 1957.
Michael E. Somers, Biology, A.B., University of Bridgeport, 1951; M.A., Clark University, 1962.

National Science Foundation

R. Bruce Cassel, Chemistry (Graduate Trainee, Sem. II), B.S., Dartmouth College, 1965.
Maida Barton Follini, Psychology (Cooperative Graduate Fellow), A.B., Radcliffe College, 1952; M.Ed., Boston University School of Education, 1959.
Joseph A. Keenan, S.J., Chemistry (Summer Fellow), B.S., Spring Hill College, 1964.

Sarah J. Parker, Chemistry (Graduate Trainee), B.A., St. Joseph's College, 1965.
Julie Rogers, Psychology (Graduate Fellow), B.A., Bennington College, 1964.
Marjorie Rosenman, Psychology (Graduate Fellow), B.S., Jackson College, 1965.
Martha G. Scott, Chemistry (Graduate Trainee, Sem. I), B.S., Guilford College, 1965.
William Spezeski, Mathematics (Graduate Trainee), B.S., University of Massachusetts, 1964.
Laura Deming Stevens, Mathematics (Graduate Trainee), B.S., Bates College, 1965.
John H. Young, Physics (Summer Fellow), B.A., Gettysburg College, 1962; M.Sc., University of New Hampshire, 1964.

United States Steel Foundation

David G. Arey, Geography, A.B., Denison University, 1959; M.A., Clark University, 1965.

Woodrow Wilson Foundation

Louis A. Fusaro, Psychology, B.A., Holy Cross College, 1965.

Teaching Assistants, Teaching Assistant Scholars and Fellows, 1965-66

Robert L. A. Adams, Geography, A.B., Williams College, 1961.
David A. Bank, Mathematics (Sem. I), B.S., Worcester Polytechnic Institute, 1965.
Anis Barghouti, Economics, B.A., Al Hikma University, 1964.
Bruce C. Blaney, History (Sem. II), B.A., Clark University, 1964; M.A., Harvard University, 1965.
Stephen J. Canner, Economics, B.A., Northeastern University, 1959; M.A., Clark University, 1961.
R. Bruce Cassel, Chemistry, B.S., Dartmouth College, 1965.
Theodore C. Crusberg, Chemistry, B.A., University of Connecticut, 1963; M.S., Yale University, 1964.
Raymond C. DuVarney, Physics, A.B., Clark University, 1962; M.A., University of New Hampshire, 1964.
Michael A. Gansecki, Sociology, B.S., Holy Cross College, 1965.
Stephen J. Goldberg, Biology, B.A., Antioch College, 1965.
Andrew H. Gonyea, Psychology, A.B., Holy Cross College, 1964.
Ann Gut, Education, B.A., Russell Sage College, 1950.
Robert P. Hanck, Education, B.A., Beloit College, 1963.
Michele M. Hilden, History, A.B., Emmanuel College, 1963.
Richard A. Houde, Mathematics, B.S.Ed., Bridgewater State College, 1963.
Teh-hwah Hwang, Mathematics, B.Sc., Taiwan Provincial Cheng Kung University, 1961.
Yeh Jane, Mathematics, B.Sc., Taiwan Normal University, 1963.
James J. Kaput, Mathematics, B.S., Worcester Polytechnic Institute, 1964.
Lawrence J. Kazura, History, B.A., Queens College, 1962.
Jean W. Kennedy, Chemistry, B.S., Muhlenberg College, 1965.
John R. King, Mathematics, B.S., University of Rhode Island, 1951; M.A., Boston College, 1957.
Thomas B. Kinraide, Biology, A.B., Boston University, 1965.
Carole N. Kolligian, Education, A.B., Clark University, 1962.
Merlin P. Lawson, Geography, A.B., University of Buffalo, 1963.
David D. Lindberg, Physics, A.B., Washington & Jefferson College, 1961.

Henry R. McCutcheon, Geography, B.A., McMaster University, 1964.
Richard A. Mahler, Biology, A.B., Boston University, 1964.
Donald M. Matusen, History, A.B., Roosevelt University, 1963.
John F. Meyers, History (1st Sem.), A.B., University of Minnesota, 1963.
Richard G. Montgomery, Mathematics, B.A., San Francisco State College, 1960; M.A.T., Brown University, 1965.
Keisuke Morimoto, Chemistry, B.S., University of Osaka, 1960.
Moiz Motlu, Mathematics, License, Istanbul University, 1965.
George W. Neilson, Physics, AH-WC, Heriot-Watt College (Scotland), 1962.
Peter A. Nickerson, Biology, A.B., Brown University, 1963; M.A., Clark University, 1965.
Frederick E. Oxtoby, Geography, B.Ed., University of British Columbia, 1965.
Sarah J. Parker, Chemistry, B.A., St. Joseph's College, 1965.
Kathleen F. Power, Education, A.B., Clark University, 1964.
Allan Press, Psychology, B.A., Massachusetts Institute of Technology, 1964.
Cornelius H. Riordan, Sociology, B.S., Fitchburg State College, 1962.
Dvora Rosenbach, Psychology, A.B., Bar Ilan University (Israel), 1961; M.A., Columbia University Teachers College, 1964; M.A., Clark University, 1965.
Jane B. Rumford, Chemistry, B.S., Monmouth College, 1963.
Douglas L. Schmucker, Biology, B.S., Kenyon College, 1965.
Martha G. Scott, Chemistry, B.S., Guilford College, 1965.
Mark C. Segal, Biology, B.S., University of Illinois, 1965.
Marshall C. Severance, Mathematics, B.S.Ed., Bridgewater State College, 1963.
Ihsan I. Siddiqui, Biology, B.Sc., Islamia College, 1963; M.Sc., Peshawar University, 1964.
Harvey N. Smith, Chemistry, B.S., Tufts University, 1959.
Anthony R. Spadaro, Physics, B.S., Fordham University, 1965.
William Spezeski, Mathematics, B.S., University of Massachusetts, 1964.
Stanley Stadnicki, Biology, A.B., Assumption College, 1965.
Edward J. Stefanini, Mathematics, B.S., Worcester Polytechnic Institute, 1960.
Laura D. Stevens, Mathematics, B.S., Bates College, 1965.
Frederick R. Strobel, Economics, B.S., Northeastern University, 1960; M.B.A., *ibid.,* 1962.
Irene W. Walch, Education, A.B., Clark University, 1964.
Sr. Clare David Walsh, Psychology, B.A., Catholic University, 1965.
Janet M. Wesson, Education, B.A., Rivier College, 1965.
Robert W. Wilson, Chemistry, State University College of Education at Oswego, 1962.
John L. Wood, Chemistry, B.Sc., University of London, 1963.
John A. Worsley, Government, A.B., Brown University, 1956.
Ching Hua Young, B.Sc., Taiwan Provincial Cheng Kung University, 1964.
Marjorie A. Zoller, B.A., Clarke College, 1965.

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George V. Steeves, A.B., *Assistant Director of Development*
William E. Topkin, A.M. in Ed., *Assistant Dean of Students*

Academic Calendar for 1966-67

1966

Thursday, September 8	Freshman orientation begins.
Monday, September 12	First semester registration.
Tuesday, September 13	Classes begin.
Wednesday, October 12	Columbus Day. Not a holiday.
Monday, October 31	Last day for receiving applications for admission to candidacy for the degree of Doctor of Philosophy in June, 1967. Mid-semester reports due at Registrar's Office at 9 a.m.
Friday, November 11	Veteran's Day. Not a holiday.
Wednesday, November 23	Beginning of Thanksgiving recess at close of classes.
Monday, November 28	Thanksgiving recess ends at 8:30 a.m.
Monday, December 12- Friday, December 16	Pre-registration for second semester.
Saturday, December 17	Beginning of Christmas recess at close of classes.

1967

Tuesday, January 3	End of Christmas recess at 8:30 a.m.
Tuesday, January 3	No classes.
Wednesday, January 4	Semester examinations begin.
Tuesday, January 10	Last day of examinations. Mid-year recess begins at 5 p.m.
Monday, January 16	Independent Study Period begins.
Monday, February 6	Second semester registration.
Tuesday, February 7	Classes begin.
Friday, February 10	Last day for receiving applications for admission to candidacy for the degrees of Master of Arts and Master of Arts in Education in June, 1967.
Wednesday, February 22	Washington's Birthday. Not a holiday.
Friday, March 24	Mid-semester reports due at Registrar's Office at 9 a.m.
Saturday, March 25	Beginning of spring recess at close of classes.
Monday, April 3	End of spring recess at 8:30 a.m.
Monday, April 24- Friday, April 28	Pre-registration for first semester 1967-68.
Monday, May 8	Dissertations for the degree of Doctor of Philosophy due at Registrar's Office at 9 a.m.
Monday, May 15	Theses for degrees of Master of Arts and Master of Arts in Education due at Registrar's Office at 9 a.m.
Thursday, May 18	No classes.
Friday, May 19	No classes.
Saturday, May 20	Semester examinations begin.
Tuesday, May 30	Memorial Day. A holiday.
Sunday, June 4	Commencement Day.
Monday, September 11	First semester registration for 1967-68.

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Clark University
Summer School

Worcester, Massachusetts

Intersession, Days, June 13–July 2
Intersession, Nights, June 13–July 8
Summer Session, Days, July 5–August 20
Summer Session, Nights, July 11–August 20

1966

CLARK UNIVERSITY BULLETIN

Number 291 April, 1966

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A Unique Opportunity to Learn

Small groups of students working in courses they enjoy typify the educational opportunity offered by the Clark University Summer School. Superior teaching and interested students combine to make for effective learning. Active participation by the students in class discussions is encouraged.

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There is a variety of courses available for teachers who seek professional advancement. The selection of subject matter courses is excellent, and several education courses will be offered.

Evening classes in liberal arts and business will be offered for those who have part time summer jobs during the day and wish to gain academic credit at the same time, as well as for those who are continuing their studies in the Clark University Evening College.

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Clark is ideally located for summer study. The summer climate is excellent and the University is near numerous cultural and recreational facilities. Trips to Tanglewood, to ball games in Boston, and swimming in the nearby ponds have been very popular. The fine tennis courts will be available for use by Summer Session students.

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Each single course offered in the Summer School is equivalent to a half-year course of the academic year and yields three semester hours of credit. The double courses in the languages and mathematics which meet for two lecture periods a day for six and one-half weeks are equivalent to year courses (six semester hours credit).

A student may carry in a normal program one course in the Intersession (three semester hours) and two courses in the Summer Session (six semester hours). Permission to carry an additional course may be granted only in exceptional cases if approved in writing prior to registration. Course changes after the third day of classes must be approved by the Director.

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Requests for withdrawal must be made in *writing* and will become effective upon receipt in the Summer School Office. *Discontinuance of attendance* *or notice to the instructor does not constitute withdrawal.* Partial refunds of full tuition will be made only under these circumstances and in accordance with the following schedule:

Intersession—Days and Nights	
June 13, 14	full refund
June 15, 16	two-thirds
June 17	one-third

Summer Session—Days	
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July 7, 8	two-thirds
July 11	one-third

Summer Session—Nights	
July 11, 12	full refund
July 13, 14	two-thirds
July 15	one-third

LIVING FACILITIES AND COSTS

Rooms will be available for both men and women in the new University dormitories but reservations should be made promptly on or before June 1. Room rent is $14.00 (including laundry) per week for single room occupancy and $11.50 (including laundry) for double. A deposit of $10.00 is required in advance to hold a room. This deposit is not part-payment for the rent. The $10.00 will be returned in full if the room is undamaged when the key is returned. In addition there is a $1.00 refundable key deposit.

FOOD SERVICE INFORMATION

Clark University will offer breakfast, lunch and supper in the Snack-Bar, Jefferson Hall Monday through Friday, 7:30 a.m. to 6:30 p.m. Meal tickets may be purchased on a weekly basis covering 15 meals for a price of $18.00. Meal tickets will entitle you to seconds on any meal. A la carte service will be available during the same hours. The Snack-Bar will be open June 13 through August 20.

MAIL SERVICE

Student mail will be distributed through individual boxes in the Central Services Office located in Estabrook Hall. A $1.00 refundable key deposit is required.

LIBRARY HOURS

The library at Clark University will be opened Monday through Thursday, 9:00 a.m. through 8:00 p.m.

ELIGIBILITY FOR COURSES

Courses beginning with "1" are open to all undergraduates except freshmen. Courses preceded by an "F" are open to freshmen. Courses beginning with "2" are open to advanced undergraduates and graduate students. Teachers working toward degrees or credits in Education should consult with Professor Vernon Jones, Chairman of the Department of Education.

ADMINISTRATIVE OFFICERS OF THE UNIVERSITY

Howard B. Jefferson, *President*
Robert M. Hyde, *Executive Vice President*
Robert F. Campbell, *Dean of the College*
Thomas J. Dolphin, *Director of the Summer School*

Special Programs

NSF SUMMER INSTITUTE IN GEOGRAPHY

A Special Institute for Selected Undergraduate Students and Faculty from small colleges, Negro and White, in the South. This is an eight week Institute, from June 13 to August 5, 1966. The program is an enrichment program, aimed at improving student geographical skills and techniques, and at orienting the participants to approach geography as a professional field. It is also designed to further research opportunities for faculty members from these small colleges.

Co-sponsored by the Association of American Geographers and Clark University, Institute participation is determined by a national selection committee. The Institute is directed by Dr. Saul B. Cohen. Staff is drawn from Clark University and outside institutions and includes Dr. Robert W. Kates, Dr. Harold M. Mayer, Dr. James W. Simmons, and Dr. Jack R. Villmow.

NDEA SUMMER INSTITUTE IN AMERICAN HISTORY

Clark University, in cooperation with the United States Office of Education, will conduct a Summer Institute in American History for fifty secondary school teachers (grades 9–12). The Institute, authorized and financed under Title XI, National Defense Education Act as Amended, 1964, will open on June 27, 1966 and continue until August 12, 1966. The deadline for completed applications is March 21, 1966. For further information address all inquiries to:

Dr. Gerald N. Grob, Director
NDEA Summer Institute in American History
Clark University
Worcester, Massachusetts 01610

NSF SUMMER INSTITUTE IN MATHEMATICS

Clark University, with the support of the National Science Foundation, will conduct a Summer Institute for High School Teachers of Mathematics which will begin on June 20, 1966 and continue until August 12, 1966. The Institute will be available to thirty secondary school teachers (grades 7–12) and one or two students in the Clark graduate program in Education. The deadline for completed applications of secondary school teachers was February 15, 1966. For further information address inquiries to:

Dr. Henry Frandsen, Director
NSF Summer Institute in Mathematics
Clark University
Worcester, Massachusetts 01610

Math S.200 - Fund'l Concepts of Arith & Al
for Teachers - 8 sem. hr

Course Offerings

Summer, 1966

Intersession

BIOLOGY

VASCULAR PLANTS OF NEW ENGLAND BIO.—S.114

Georgene A. Moizuk, M.A., *Visiting Lecturer, Springfield College*

Primarily a field course in which the identification of ferns, fern allies, cone-bearing plants, and flowering plants will be stressed. The ecological and evolutionary relationships of vascular plants in various New England habitats will be considered as well as sight-identification. Extended trips to Cape Cod and the White Mountains as well as short trips to the Berkshires and around the Worcester area are planned. No prerequisites are required, although a course in Introductory Botany would be helpful.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

BUSINESS ADMINISTRATION

BUSINESS STATISTICS B.A.—S.16a, b

Albert J. Sargent, M.B.A., *Lecturer*

This course is designed to give the student a knowledge of the basic statistical techniques and procedures as they are applied to business and economic data. Lectures and laboratory exercises. Prerequisite: Math. 11.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Tuesday and Thursday, 6:00–9:00 p.m.

BUSINESS LAW B.A.—S.20a, b

Reginald J. Smith, M.Ed., *Visiting Lecturer, Holy Cross College*

A study of the legal basis of business and the principles of statutory and common law as they affect business relationships; covering such subjects as contracts, agency, property, sales, partnerships, corporations, and negotiable instruments.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Tuesday and Thursday, 6:00–9:00 p.m.

PRINCIPLES OF ACCOUNTING B.A.—S.117a

Frederick R. Strobel, M.B.A., *Lecturer*

The fundamental accounting equation, the operating cycle, accruals and adjustments, preparation and analysis of statements of various forms of business organization. Successful completion of this course will prepare the student to continue with the second half offered in the spring semester of the academic year.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

MANAGEMENT-LABOR RELATIONS B.A.—S.184

F. Eugene Melder, Ph.D., *Professor of Economics*

Management-employee relationships with special reference to modern views on management and union grievance handling and bargaining. Opportunity for study of findings of human relations research as it relates to shop industrial situations and management leadership. A brief review of private labor arbitration and public labor relations policy is included. Discussion and case methods are employed. Prerequisite: Economics 11 or consent of instructor.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

ECONOMICS

PRINCIPLES OF ECONOMICS EC.—S.11a, b

J. Richard Aronson, Ph.D., *Visiting Lecturer, Lehigh University*

An introduction to the fundamental economic principles, together with a study of the practical application of these principles to the problems of American life.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Tuesday and Thursday, 6:00–9:00 p.m.

MONEY AND BANKING EC.—S.13

Stephen J. Canner, Ph.D., *Lecturer*

The principles of money and banking; characteristics of the American monetary and banking system; theoretical relations of money, prices, income. Prerequisite: Principles of Economics (Macro).

Monday through Friday, 9:00 a.m. and 2:00 p.m.

EDUCATION

METHODS AND MATERIALS IN SECONDARY EDUCATION ED.—S.208

Francis X. Russo, Ph.D., *Assistant Professor of Education*

Methods of approach, presentation, development, and evaluation in the junior and senior high school classroom. Time will be given to various types and sources of materials and to actual demonstration and application of theory.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

ENGLISH

ENGLISH COMPOSITION AND LITERATURE F.—ENG.—S.11a, b

John McLaughlin, M.A., *Instructor in English*

Through the study of essays on the history and nature of the English language, the first semester will introduce the student to the techniques of rhetoric, logic, and semantics that contribute to the writing of effective expository prose. The second semester, an introduction to literature, will be devoted to the reading and analysis of literary types—the short story, the novel, the drama, and poetry.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Monday, Wednesday and Friday, 6:00–8:00 p.m.

SHAKESPEARE ENG.—S.113

Karl O. E. Anderson, Ph.D., *Professor of English*

A study of ten major plays (comedies, histories, and tragedies), aimed to bring out the development of Shakespeare as a dramatist and to trace the changes in his attitude towards life. The plays to be read are *Romeo and Juliet*, *As You Like It*, *Richard II*, *Henry IV*, *Part I*, *Julius Caesar*, *Hamlet*, *Lear*, *Othello*, *Macbeth*, and *Winter's Tale*.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

THE SHORT STORY ENG.—S.125

William H. Carter, Jr., Ph.D., *Associate Professor of English*

This course involves the intensive reading of a wide range of stories which exemplify a variety of fictional methods, affording the student some knowledge of the history of this literary type. The primary aim is to help the student develop an appreciation of the broadly human values implicit in the short story.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

FINE ARTS

MICHELANGELO AND THE HIGH RENAISSANCE F.A.—S.155

Samuel P. Cowardin, III, Ph.D., *Associate Professor of Fine Arts*

The course will concentrate on Michelangelo's work in architecture, sculpture, and painting, taking into account personal, religious, intellectual, and political influences in his life. His style will be viewed in relation to the Renaissance background as well as the Mannerist trends of the sixteenth century. Readings, class discussions with slides, and a paper.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

OPERA F.A.—S.17

Wesley M. Fuller, M.M., *Associate Professor of Music*

With the help of translated librettos, recordings and selected readings, a study is made of a group of operas representing all periods of music history, with emphasis on the many solutions to the combination of music and drama.

Monday, Wednesday and Friday, 6:00 to 9:00 p.m.

INTRODUCTION TO MUSIC F.—F.A.—S.102

Relly I. Raffman, A.M., *Associate Professor of Music*

What to listen for in Music. Designed for the student with no previous musical training or experience, it will deal with the basic theoretical elements and materials of music.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

GOVERNMENT AND HISTORY

PRINCIPLES OF INTERNATIONAL RELATIONS GOV.—S.143

Merritt G. Abrash, Ph.D., *Visiting Lecturer, Rensselaer Polytechnic Institute*

After examining the factors which determine the general nature of relations between states, several major international crises will be analyzed, with the object of uncovering the different methods of executing foreign policy and the elements which shape the foreign policies of particular states. The balance of power, ideology, imperialism, diplomacy, and international law and organization will be among the subjects brought into the discussion.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

EUROPE AND THE UNITED STATES SINCE 1500 HIST.—S.10a, b

Lawrence J. Kazura, B.A., *Lecturer*

A study of selected topics designed to illustrate the evolution of modern Western society. The emphasis throughout will be on the thought patterns underlying institutional developments. *Evening College students who have had Growth of Western Civilization may not take this course.*

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Tuesday and Thursday, 6:00–9:00 p.m.

TOTALITARIANISM IN GERMANY, 1933–1945 HIST.—S.208

Daniel R. Borg, Ph.D., *Assistant Professor of History*

A seminar on the origins, ideology and operation of the Nazi regime.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

MATHEMATICS

FUNDAMENTALS OF MATHEMATICS MATH.—S.11a, b

Instructor to be announced

A logical development of elementary mathematics: including an axiomatic treatment of the real number system, arithmetic and elementary algebra, functions and relations, polynomials and topics from the theory of equations, introductory analytic geometry, and the exponential, logarithmic, and trigonometric functions. As a background, the arithmetic and algebra over arbitrary sets will first be considered.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Monday, Wednesday and Friday, 6:00–8:00 p.m.

ELEMENTARY DIFFERENTIAL EQUATIONS MATH.—S.141

John F. Kennison, Ph.D., *Assistant Professor of Mathematics*

Curve families, tangent fields and the solution of differential equations. First order and linear equations. Graphic and series methods. Applications. Prerequisite: Math. 12 Calculus.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

PHILOSOPHY

PROBLEMS OF PHILOSOPHY PHIL.—S.11

Barbara B. Richardson, A.B., *Visiting Lecturer, Boston University*

Nature and method of philosophy. Application of philosophical method to contemporary personal and social problems. Detailed analysis of some typical problems in various fields of philosophy. Limited to 25 students.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

PSYCHOLOGY

GENERAL PSYCHOLOGY PSY.—S.11a, b

Instructor to be announced

An introduction to the principles of human behavior.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Monday, Wednesday and Friday, 6:00–8:00 p.m.

PSYCHOLOGY OF PERSONALITY PSY.—S.172

Instructor to be announced

A course dealing with the concepts and issues involved in the psychology of personality. Attention will be given to various approaches to the study of personality such as trait theories, typologies, field theory, and psychoanalysis. Methods of appraising personality will also be considered. Prerequisite: General Psychology.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

Summer Session

BIOLOGY

INTRODUCTORY BOTANY F.—BIO.—S.11

Georgene A. Moizuk, M.A., *Visiting Lecturer, Springfield College*

The structure and life processes of seed plants and the interrelationships between plants and man. Heredity, evolution, and a brief survey of the plant kingdom will be included. Some field trips are planned.

Laboratory fee: $10.00.
Monday through Friday, 9:15–10:25 a.m.
Laboratory: To be arranged.

GENERAL ECOLOGY F.—BIO.—S.17

Georgene A. Moizuk, M.A., *Visiting Lecturer, Springfield College*

An introductory study of the distribution of plants and animals, their interrelationships and adaptations to such a wide variety of environments as the seashore, sand dunes, woodlands, lakes and streams. Several short trips and at least two extended field trips will be required. Previous courses in Biology are helpful but not required.

Laboratory fee: $10.00.
Lecture: Monday through Friday, 11:45 a.m.–12:55 p.m.
Laboratory: Two afternoons to be arranged.

INSTRUMENTAL PROCEDURES IN BIOLOGICAL INVESTIGATIONS
BIO.—S.262

Harris Rosenkrantz, Ph.D., *Associate Professor (Affiliate) of Biology*

The theory and application of various analytical procedures and use of modern instrumentation in biological problems will be discussed. A practical introduction to the analytical balance, centrifuge, vacuum distillation, pH, dialysis, chromatography, counter-current distribution, photoelectric colorimetry, fluorometry, turbidometry, spectrophotometry and spectroscopy will be carried out. Instrumentation will be coordinated with techniques of tissue preparation, histochemistry, and radioactive tracers.

Laboratory fee: $10.00.
Monday through Thursday, 8:30–9:30 a.m.
Laboratory: Friday, 8:30–12:30 p.m.

BUSINESS ADMINISTRATION

BUSINESS STATISTICS B.A.—S.16b

Albert J. Sargent, M.B.A., *Lecturer*

See description under Intersession. Prerequisite: B.A.—S.16a.

Tuesday and Thursday, 6:00–9:00 p.m.

CORPORATION FINANCE B.A.—S.18

Frederick E. Bamford, M.B.A., *Assistant Professor of Economics and Business Administration*

A study of the financial structure of modern industry with emphasis on the nature of the business corporation, its financial practices, types of securities, capital structure, financial reorganization, and the problems of internal financial control.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

BUSINESS LAW B.A.—S.20b

Reginald J. Smith, M.Ed., *Visiting Lecturer, Holy Cross College*

See description under Intersession. Prerequisite: B.A.—S.20a.

Tuesday and Thursday, 6:00–9:00 p.m.

ADVERTISING B.A.—S.152

Ray A. Yetvin, M.B.A., *Lecturer*

Advertising as a tool of marketing. Topics studied include the economic functions of advertising, advertising research, media selection, advertising organizations and testing.

Tuesday and Thursday, 6:00–9:00 p.m.

ECONOMICS

PRINCIPLES OF ECONOMICS EC.—S.11b

Instructor to be announced

See description under Intersession. Prerequisite: EC.—S.11a.

Tuesday and Thursday, 6:00–9:00 p.m.

PUBLIC FINANCE EC.—S.15

Frederick E. Bamford, M.B.A., *Assistant Professor of Economics and Business Administration*

The principles of governmental expenditures, revenues, and debts, with particular reference to the United States.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

ECONOMIC DEVELOPMENT AND UNDERDEVELOPMENT EC.—S.150

Sang C. Suh, A.M., *Assistant Professor of Economics*

A historical survey of growth patterns in the economically advanced countries, followed by a discussion of major characteristics in modern underdeveloped countries and various policies relating to how development can be started in these countries.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

BASIC MATHEMATICS FOR ECONOMISTS EC.—S.215

Sang C. Suh, A.M., *Assistant Professor of Economics*

This course is designed for those who need mathematical background for quantitative study in Economics and Business. The course includes a brief treatment of analytic geometry, differential and integral calculus, difference and differential equations, matrix and vector analysis. Prerequisite: Fundamentals of Mathematics or its equivalent.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

EDUCATION

ADMINISTRATION OF GUIDANCE AND PERSONNEL SERVICES

ED.—S.230

Spencer Potter, M.A., *Assistant Director of Guidance and Placement*

A consideration of the principles of organization and the practical administration of guidance and personnel services in the secondary school. This will involve coordination of the various facets of the program in their application to the total functioning of the school.

Monday through Friday, 9:15–10:25 a.m.

THE TEACHING OF READING ED.—S.262

J. Francis O'Mara, Ph.D., *Visiting Lecturer, Worcester State College*

The teaching of reading in the elementary school, with special emphasis on the function of developmental reading in a modern school, practical techniques and procedures for developing basic reading skills and competency in the reading-study skills of the content areas.

Monday through Friday, 10:30–11:40 a.m.

METHODS AND MATERIALS IN THE ELEMENTARY SCHOOL

ED.—S.263

J. Francis O'Mara, Ph.D., *Visiting Lecturer, Worcester State College*

Methods and materials in teaching in the middle grades. Particular attention will be given to lesson planning, classroom management, and to materials used in the classroom.

Monday through Friday, 8:00–9:10 a.m.

CURRICULUM DEVELOPMENT AND SUPERVISION IN THE SECONDARY SCHOOL ED.—S.265

Spencer Potter, M.A., *Assistant Director of Guidance and Placement*

The course will include study and development of daily and unit planning of curriculum by individual teachers and a consideration of the coordination of efforts of individuals and teams of teachers in the development of knowledge and attitudes in the total school program.

Tuesday and Thursday, 6:00–9:00 p.m.

ENGLISH

ENGLISH COMPOSITION AND LITERATURE F.—ENG.—S.11b

Arthur H. Martin, A.B., *Instructor in English*

See description under Intersession. Prerequisite: ENG.—S.11a.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

PUBLIC SPEAKING F.—ENG.—S.12

James F. Beard, Ph.D., *Professor of English*

A course in the fundamentals of public speaking, emphasizing both the composition and delivery of the most common types of speeches, such as introductory, expository, and impromptu speeches. Special attention will be given to problems of human relations, voice tests, vocabulary development, and the acquisition of self-confidence, poise, and effective communication techniques. Practice speeches, conference, and voice recordings to enable the student to recognize and correct his speech deficiencies. (Candidates for the B.S. in B.A. degree should use course No. B.A.—S.17; candidates for the A.B. degree should use the course No. ENG.—S.12.) Limited to 15 students.

Blakeslee House. Monday, Wednesday and Friday, 8:00–10:00 p.m.

CREATIVE WRITING ENG.—S.16

Stanley Sultan, Ph.D., *Associate Professor of English*

A course in the writing of the short story, with attention given to lyric poetry, longer fiction and the informal essay, where class interest warrants. Class meetings will deal largely with important aspects of the art of fiction; published literary works and student manuscripts will be discussed. Prerequisite: ENG.—S.11a, b.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

INTERMEDIATE COMPOSITION ENG.—S.19

Charles S. Blinderman, Ph.D., *Associate Professor of English*

Through the study and application of rhetorical methods, this course is designed to assist students to improve their expository writing. Diction, sentence structure, paragraph integrity, theme organization, logic, semantics, persuasion, the relationship of idea to expression and of expression to audience are among the matters analyzed.

Monday through Friday, 8:00–9:10 a.m.

CONTEMPORARY AMERICAN FICTION ENG.—S.106

James F. Beard, Ph.D., *Professor of English*

A critical introduction to the best American fiction since about 1900, with emphasis on its esthetic values, sociological insights, and philosophic implications. Authors read and discussed will include Henry James, Theodore Dreiser, F. Scott Fitzgerald, Sherwood Anderson, Ernest Hemingway, William Faulkner, Truman Capote, J. D. Salinger, Norman Mailer, Ralph Ellison, Saul Bellow, and others.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

MODERN BRITISH AND AMERICAN DRAMA ENG.—S.146

Stanley Sultan, Ph.D., *Associate Professor of English*

This course includes plays by Oscar Wilde, G. B. Shaw, J. M. Synge, W. B. Yeats, Eugene O'Neill, Thornton Wilder, T. S. Eliot, Arthur Miller, Tennessee Williams, and others, and considers the relationship between modern English drama and such influential European playwrights of the turn of the century as Ibsen, Chekhov, and Strindberg.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

LITERATURE OF WESTERN CIVILIZATION ENG.—S.150

Charles S. Blinderman, Ph.D., *Associate Professor of English*

A study of literature basic to the cultural development of western civilization; selections will range in subject from mythology to political science, in type from the epic poem to the essay, and in time from Greek antiquity to the Renaissance.

Monday through Friday, 10:30–11:40 a.m.

FINE ARTS

ART STUDIO WORKSHOP F.—F.A.—S.100

John T. Murphey, B.S., *Assistant Professor of Fine Arts*

An art involvement course designed for those with little or no experience in art production in which the student will experiment in class in a variety of mediums and approaches increasing his understanding as well as his ability in the art of creation. Problems will include composition, color, form, depth, representation drawing, dream-drawing, collage, "found-objects," action-painting, abstract painting, and others. Grade rests essentially on effort and understanding. There will be an additional fee for materials of about $25.00 payable at the first meeting. Enrollment limited to 9 students.

Tuesday and Thursday, 6:00–9:00 p.m.

GEOLOGY

PHYSICAL GEOLOGY F.—GEOL.—S.12a

Wesley E. Bryers, Ph.D., *Assistant Professor of Geology*

Introduction to geology, origin of the earth, its development through time; the study of the common minerals and rocks, their structure, origin and occurrence; geological activities of the air, streams, and the sea; nature of glaciers, volcanoes and earthquakes, and the age of the earth. Laboratory work consists of mineral and rock identification.

Tuesday and Thursday, 6:00–9:00 p.m.

HISTORICAL GEOLOGY GEOL.—S.12b

Wesley E. Bryers, Ph.D., *Assistant Professor of Geology*

This semester deals with the origin of continents and ocean basins, their development through time; the glacial periods and the antiquity of man; development of surface features of North America; and evolution of life through geologic time. Laboratory work consists of map interpretation and fossil identification. Lectures and laboratory. Laboratory: Thursday, 1:00–4:00 p.m.

Monday through Friday, 10:30–11:40 a.m.

HISTORY

EUROPE AND THE UNITED STATES SINCE 1500 HIST.—S.10b

Lawrence J. Kazura, B.A., *Lecturer*

See description under Intersession. *Evening College students who have had Problems of the Modern World may not take this course.*

Tuesday and Thursday, 6:00–9:00 p.m.

THE SOVIET SYSTEM HIST.—S.282

John O. Iatrides, Ph.D., *Visiting Lecturer, Southern Connecticut State College*

The course examines the political, economic and social development of Russia since the Bolshevik Revolution. After a brief historical survey of twentieth century Russia the ideology, institutions and foreign policies of the Soviet system will be examined.

Monday through Friday, 9:15–10:25 a.m.

THE FRENCH REVOLUTION HIST.—S.286

James F. Powers, Ph.D., *Visiting Lecturer, Holy Cross College*

An examination of the origins, outbreak and development of this great upheaval, commencing with the age of the Enlightenment and concluding with the dictatorship of Napoleon Bonaparte.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

GERMAN

INTRODUCTORY GERMAN* F.—GER.—S.11

James S. Edwards, M.A., *Associate Professor of German*

A complete first year college course in German which will make extensive use of modern language teaching aids. Aural-oral practice. Early in the course the student will be introduced to a series of graded readers, which must be mastered by the end of the course and which are designed to prepare him for independent reading of German newspapers and journals. The course will demand the full time and attention of those interested.

Monday through Friday, 9:15–10:25 a.m. and 2:00–3:10 p.m.

MATHEMATICS

FUNDAMENTALS OF MATHEMATICS MATH.—S.11b

Instructor to be announced

See description under Intersession. Prerequisite: Math.—S.11a.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

CALCULUS* MATH.—S.12

Instructor to be announced

Introduction to differential and integral calculus; essential for further study in mathematics as well as for the study of applications in the natural and social sciences.

Monday through Friday, 9:15–10:25 a.m. and 2:00–3:10 p.m.

PSYCHOLOGY

GENERAL PSYCHOLOGY PSY.—S.11b

Instructor to be announced

See description under Intersession. Prerequisite: PSY.—S.11a.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

ABNORMAL PERSONALITY PSY.—S.103

Instructor to be announced

A survey of the forms of abnormal behavior and theories of abnormality. Prerequisites: General Psychology and Psychology of Personality.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

*Double course.

SOCIAL PSYCHOLOGY PSY.—S.170

Walter H. Crockett, Ph.D., *Associate Professor of Psychology*

The role of social factors in the behavior of individuals and of groups. Among the topics to be discussed are attitudes, rumor, prejudice, leadership and public opinion polls.

Monday through Friday, 8:00–9:10 a.m.

INDUSTRIAL PSYCHOLOGY PSY.—S.190

Instructor to be announced

A course dealing with the psychological factors underlying the interaction of individuals in their everyday working activities. Motivations, attitudes and values, as they affect human relations in industry will be discussed. Problems of industrial morale and problems of supervisory relationships will be considered, as will be the use of psychological tests and other techniques in job evaluation, personnel selection and placement.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

PSYCHOLOGY OF LEARNING PSY.—S.160

Instructor to be announced

Theoretical viewpoints and experiments in the field of learning. Prerequisite: General Psychology.

Monday through Friday, 10:30–11:40 a.m.

SOCIOLOGY

PRINCIPLES OF SOCIOLOGY SOC.—S.11a

Frederick W. Killian, LL.B., *Associate Professor of Sociology*

An introduction to the basic concepts and theories of sociology and their application to an analysis of American society.

Monday through Friday, 10:30–11:40 a.m.

CRIME, DELINQUENCY, AND SOCIETY SOC.—S.13

Frederick W. Killian, LL.B., *Associate Professor of Sociology*

The behavioral phenomena of crime and delinquency in society; theories thereof; the nature and function of criminal law; juvenile delinquency and juvenile courts; criminal justice and the courts; treatment of deviant behavior of today; types of offenses and probable causation; sex offenses and insanity; outline of probation, parole and the prison world.

Monday through Friday, 11:45–12:55 p.m.

COURSE SCHEDULE

INTERSESSION—DAYS—JUNE 13–JULY 2—All classes meet twice a day 9:00 a.m. and 2:00 p.m.

Bio. —S.114	Vascular Plants of New England	Moizuk
Ec. —S.13	Money and Banking	Canner
Ed. —S.208	Methods and Materials in Secondary Education	Russo
Eng. —S.125	The Short Story	Carter
F.A. —S.155	Michelangelo and The High Renaissance	Cowardin
F.A. —S.102	Introduction to Music	Raffman
Gov. —S.143	Principles of International Relations	Abrash
Math.—S.141	Elementary Differential Equations	Kennison
Psy. —S.172	Psychology of Personality	To be announced

INTERSESSION—NIGHTS—JUNE 13–JULY 8—All classes meet Monday, Wednesday and Friday, 6:00–9:00 p.m.

B.A. —S.16a	Business Statistics	Sargent
B.A. —S.20a	Business Law	Smith
B.A. —S.117a	Principles of Accounting	Strobel
B.A. —S.184	Management-Labor Relations	Melder
Ec. —S.11a	Principles of Economics	Aronson
Eng. —S.11a	English Composition and Literature	McLaughlin
Eng. —S.113	Shakespeare	Anderson
F.A. —S.17	Opera	Fuller
Hist. —S.10a	Europe and the U.S. Since 1500	Kazura
Hist. —S.208	Totalitarianism in Germany, 1933–1945	Borg
Math.—S.11a	Fundamentals of Mathematics	To be announced
Phil. —S.11	Problems of Philosophy	Richardson
Psy. —S.11a	General Psychology	To be announced

SUMMER SESSION—(Day Classes)—JULY 5–AUGUST 20

8:00–9:10 a.m. Monday through Friday

Ed. —S.263	Methods and Materials in the Elementary School	O'Mara
Eng. —S.19	Intermediate Composition	Blinderman
Psy. —S.170	Social Psychology	Crockett

8:30–9:30 a.m. Monday through Thursday

Bio. —S.262	Instrumental Procedures in Biological Investigations (Friday: Laboratory, 8:30 to 12:30)	Rosenkrantz

9:15–10:25 a.m. Monday through Friday

Bio. —S.11	Introductory Botany	Moizuk
Ed. —S.230	Administration of Guidance and Personnel Services	Potter
*Ger. —S.11	Introductory German	Edwards
Hist. —S.282	The Soviet System	Iatrides
*Math.—S.12	Calculus	To be announced

10:30–11:40 a.m. Monday through Friday

Ed. —S.262	The Teaching of Reading	O'Mara
Eng. —S.150	Literature of Western Civilization	Blinderman
Geol. —S.12b	Historical Geology	Bryers
Psych.—S.160	Psychology of Learning	To be announced
Soc. —S.11a	Principles of Sociology	Killian

Clark University
Summer School

Worcester, Massachusetts

Intersession, Days, June 12–July 1
Intersession, Nights, June 12–July 7
Summer Session, Days, July 3–August 19
Summer Session, Nights, July 10–August 19

1967

CLARK UNIVERSITY BULLETIN

Number 297 April, 1967

The Clark University BULLETIN is published six times a year, in April, twice in July, twice in September and December. Second-class postage paid at Worcester, Massachusetts. Correspondence may be addresssed to: The Summer School, Clark University, 950 Main Street, Worcester, Massachusetts 01610.

A Unique Opportunity to Learn

Small groups of students working in courses they enjoy typify the educational opportunity offered by the Clark University Summer School. Superior teaching and interested students combine to make for effective learning. Active participation by the students in class discussions is encouraged.

Courses are available in the arts and sciences at both the graduate and undergraduate level, permitting students to accelerate their work toward a degree. In addition, the selection of courses in the modern languages permits current and prospective graduate students to better prepare themselves for graduate study.

There is a variety of courses available for teachers who seek professional advancement. The selection of subject matter courses is excellent, and several education courses will be offered.

Evening classes in liberal arts and business will be offered for those who have part time summer jobs during the day and wish to gain academic credit at the same time, as well as for those who are continuing their studies in the Clark University Evening College.

Clark University has an excellent library employing the open shelf system with an opportunity for unlimited browsing of the large and varied collection of modern books, professional periodicals and an unusually large map collection.

Clark is ideally located for summer study. The summer climate is excellent and the University is near numerous cultural and recreational facilities. Trips to Tanglewood, to ball games in Boston, and swimming in the nearby ponds have been very popular. The fine tennis courts will be available for use by Summer Session students.

Degrees and Credits

All courses offered are accepted at Clark for credit toward the degree of Bachelor of Arts or either of the Evening College degrees of Bachelor of Science in General Studies or Bachelor of Science in Business Administration unless specifically limited to one of the degrees as stated in the course description. Many courses in the Summer School count toward the degrees of Master of Arts, Master of Arts in Education, and Doctor of Philosophy. Approval should, however, be obtained in advance from a student's major department.

Each single course offered in the Summer School is equivalent to a half-year course of the academic year and yields three semester hours of credit. The double courses in the languages and mathematics which meet for two lecture periods a day for six and one-half weeks are equivalent to year courses (six semester hours credit).

A student may carry in a normal program one course in the Intersession (three semester hours) and two courses in the Summer Session (six semester hours). Permission to carry an additional course may be granted only in exceptional cases if approved in writing prior to registration. Course changes after the third day of classes must be approved by the Director.

One transcript of a student's Summer School record is available free of charge, and application for it should be made in the Summer School Office. There is a $1.00 fee for each additional transcript.

TUITION AND FEES

A matriculation fee of $5.00 is required of all students entering Clark University for the first time. The tuition for each three semester hour course is $105.00. Persons who wish to audit a course without receiving credit register and pay tuition at the stated rate. However, students taking two courses for credit during the Summer Session may audit a third course without additional cost. Tuition and fees must be paid in the Summer School Office immediately following registration. A fee for late registration of $3.00 must be paid by students who fail to complete registration within the official Registration Period.

WITHDRAWALS AND REFUNDS

Requests for withdrawal must be made in *writing* and will become effective upon receipt in the Summer School Office. *Discontinuance of attendance* *or notice to the instructor does not constitute withdrawal.* Partial refunds of full tuition will be made only under these circumstances and in accordance with the following schedule:

Intersession—Days and Nights

June 12, 13	full refund
June 14, 15	two-thirds
June 16	one-third

Summer Session—Days

July 3, 5	full refund
July 6, 7	two-thirds
July 10	one-third

Summer Session—Nights

July 10, 11	full refund
July 12, 13	two-thirds
July 14	one-third

LIVING FACILITIES AND COSTS

Rooms will be available for both men and women in the new University dormitories but reservations should be made promptly on or before June 1. Room rent is $14.00 (including laundry) per week for single room occupancy and $11.50 (including laundry) for double. A deposit of $10.00 is required in advance to hold a room. This deposit is not part-payment for the rent. The $10.00 will be returned in full if the room is undamaged when the key is returned. In addition there is a $1.00 refundable key deposit.

FOOD SERVICE INFORMATION

Clark University will offer breakfast, lunch and supper in the Snack-Bar, Jefferson Hall Monday through Friday, 7:30 a.m. to 6:30 p.m. Meal tickets may be purchased on a weekly basis covering 15 meals for a price of $19.00. Meal tickets will entitle you to seconds on any meal. A la carte service will be available during the same hours. The Snack-Bar will be open June 12 through August 19.

MAIL SERVICE

Student mail will be distributed through individual boxes in the Central Services Office located in Estabrook Hall. A $1.00 refundable key deposit is required.

LIBRARY HOURS

The library at Clark University will be open Monday through Thursday, 9:00 a.m. to 8:00 p.m., and Friday, 9:00 a.m. to 5:00 p.m.

VETERANS

Veterans attending the 1967 Summer School should designate by writing *Veteran* in the left hand corner of the registration card.

Veterans who are non-Clark students are reminded that Certificates of Eligibility held during the Spring Semester 1967 do not apply to the Summer School and that a new application must be completed for the course of summer study.

ELIGIBILITY FOR COURSES

Courses beginning with "1" are open to all undergraduates except freshmen. Courses preceded by an "F" are open to freshmen. Courses beginning with "2" are open to advanced undergraduates and graduate students. Teachers working toward degrees or credits in Education should consult with Dr. Joseph C. Bentley, Chairman of the Department of Education.

ADMINISTRATIVE OFFICERS OF THE UNIVERSITY

Howard B. Jefferson, *President*
Robert M. Hyde, *Executive Vice President*
Robert F. Campbell, *Dean of the College*
Thomas J. Dolphin, *Director of the Summer School*

Special Programs

NDEA SUMMER INSTITUTE IN AMERICAN HISTORY

Clark University, in cooperation with the United States Office of Education, will conduct a Summer Institute in American History for fifty secondary school teachers (grades 9–12). The Institute, authorized and financed under Title XI, National Defense Education Act as Amended, 1964, will open on June 26, 1967 and continue until August 11, 1967. The deadline for completed applications is March 20, 1967. For further information address all inquiries to:

Dr. Gerald N. Grob, Director
NDEA Summer Institute in American History
Clark University
Worcester, Massachusetts 01610

A.L.S.G. SUMMER SEMINAR ABROAD

The Summer School, during its forthcoming 1967 session, will offer a "Summer Seminar Abroad." This seminar will concern itself with the history and cultural foundations of Western Europe. It will be five weeks in length, and will include week-long study periods at the universities of London, Rome, and Paris. (Non-credit.)

A special section of the summer seminar will be devoted to an examination of some cultural, ethnic, and national differences in patterns of non-verbal communication (e.g., gesture, kinesics, proxemics). If possible, an attempt will be made to explore differences in patterns of psychopathology in these different groups. Background reading will be required. This seminar will be five weeks in length, three of these on the campuses of the universities of London, Rome, and Paris. (3 semester hours credit.) Complete cost $700.

EDUCATIONAL AND ECONOMIC DEVELOPMENT IN AFRICA

F. Eugene Melder, Ph.D., *Professor of Economics*

A four weeks study trip to include five of the following "emerging" African countries (Egypt, Ethiopia, Kenya, Sudan, Tanzania, Zambia, and Rhodesia) will provide the sites of study. Conducted visits to development projects and educational institutions, with reading and lectures on the scene, will focus on education, manpower training and economic development problems. Opportunity will be afforded to visit points of tourist interest, such as the pyramids and great Sphinx of Gizeh, the monolithic churches of Lalibela, and a camera safari to a national game park in Kenya or Tanzania.

The anticipated course cost is approximately $1695, including tuition, round trip air fare—tourist class, hotels, meals in Africa, local transportation in Africa, guide service and a camera safari, but excluding passport, visa and inoculation fees, and sightseeing stopovers in Europe. The trip south of Egypt and Sudan will be in the cool or "winter" season, providing generally comfortable temperatures. Applications accompanied by a deposit of $200 must be made by April 30.

Departure from Boston June 26, 1967 and return to Boston August 9, 1967.

Course Offerings

Summer, 1967

Intersession

BIOLOGY

FIELD ECOLOGY F.—BIO.—S.17

William A. Hutchinson, M.A., *Visiting Lecturer, Holyoke Community College*

An introductory study of the distribution of plants and animals, their interrelationships and adaptations to such a wide variety of environment as encompassed from the seashore to the uplands of western Massachusetts. Many all-day field trips will bring the student to the outdoor laboratory. A previous course in biology is required. *Limited to 16 students.*

Monday through Friday, 9:00 a.m. and 2:00 p.m.

BUSINESS ADMINISTRATION

BUSINESS STATISTICS B.A.—S.16a, b

Albert J. Sargent, M.B.A., *Instructor*

This course is designed to give the student a knowledge of the basic statistical techniques and procedures as they are applied to business and economic data. Lectures and laboratory exercises. Prerequisite: Math. 11. *Final examinations: To be arranged.*

Intersession: June 12–July 13, Tuesday and Thursday, 6:00–10:00 p.m.
Summer Session: July 18–August 19, Tuesday and Thursday, 6:00–10:00 p.m.

CORPORATION FINANCE B.A.—S.18

Cornelius F. Walsh, M.B.A., *Visiting Lecturer, Northwestern University*

A study of the financial structure of modern industry with emphasis on the nature of the business corporation, its financial practices, types of securities, capital structure, financial reorganization, and the problems of internal financial control. *Final examination: To be arranged.*

Intersession: June 12–July 27, Monday and Wednesday, 7:00–10:00 p.m.

BUSINESS LAW B.A.—S.20a, b

Reginald J. Smith, M.Ed., *Visiting Lecturer, Holy Cross College*

A study of the legal basis of business and the principles of statutory and common law as they affect business relationships; covering such subjects as contracts, agency, property, sales, partnerships, corporations, and negotiable instruments. *Final examinations: To be arranged.*

Intersession: June 12–July 14, Monday, Wednesday and Friday, 7:00–9:40 p.m.
Summer Session: July 17–August 19, Monday, Wednesday and Friday, 7:00–9:40 p.m.

PRINCIPLES OF ACCOUNTING B.A.—S.117a, b

Frederick R. Strobel, M.B.A., *Lecturer*

First semester: The fundamental accounting equation, the operating cycle, accruals and adjustments, preparation and analysis of statements of various forms of business organization. *Second semester:* Accounting for and analysis of major areas utilized in making management decisions including cash and investments, assets, liabilities, manufacturing operations, cost, ratio analysis, budgeting. *Final examinations: To be arranged.*

Intersession: June 12–July 14, Monday, Wednesday and Friday, 7:00–9:40 p.m.
Summer Session: July 17–August 19, Monday, Wednesday and Friday, 7:00–9:40 p.m.

PRINCIPLES OF MARKETING B.A.—S.124

George A. Balko, Jr., M.B.A., *Assistant Professor of Business Administration*

An analysis of the institutions and processes involved in the distribution of goods and services, including a study of consumer motivation, retailing and wholesaling institutions, and marketing policies and practices. *Final examination: To be arranged.*

Intersession: June 12–July 27, Tuesday and Thursday, 7:00–10:00 p.m.

FOUNDATIONS OF BUSINESS B.A.—S.320

Cornelius F. Walsh, M.B.A., *Visiting Lecturer, Northwestern University*

Genesis and historical perspectives of business in society. Determination of business goals and social goals. Evaluation of business behavior. The profit motive. The responsibility of businessmen. Public policy as it affects business. Discussion of the views of some apologists and critics of business. *Final examination: To be arranged.*

Intersession: June 12–July 27, Tuesday and Thursday, 7:00–10:00 p.m.

MARKETING RESEARCH B.A.—S.340

George A. Balko, Jr., M.B.A., *Assistant Professor of Business Administration*

The systematic and objective search for and analysis of information for the solution of marketing problems. The value of information, research design, means of acquiring and measuring data, design of samples, analysis of data, experimentation, forecasting. *Final examination: To be arranged.*

Intersession: June 12–July 27, Monday and Wednesday, 7:00–10:00 p.m.

ECONOMICS

PRINCIPLES OF ECONOMICS EC.—S.11a, b

Caroline A. Murphy, M.A., *Lecturer*

An introduction to the fundamental economic principles, together with a study of the practical application of these principles to the problems of American life.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Tuesday and Thursday, 6:00–9:00 p.m.

ENGLISH

ENGLISH COMPOSITION AND LITERATURE F.—ENG.—S.11a, b

Arthur Martin, A.B., *Instructor in English*

Through the study of essays on the history and nature of the English language, the first semester will introduce the student to the techniques of rhetoric, logic, and semantics that contribute to the writing of effective expository prose. The second semester, an introduction to literature, will be devoted to the reading and analysis of literary types—the short story, the novel, the drama, and poetry.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Tuesday and Thursday, 6:00–9:00 p.m.

SHAKESPEARE ENG.—S.113

Karl O. E. Anderson, Ph.D., *Professor of English*

A study of nine major plays (comedies, histories, and tragedies), aimed to bring out the development of Shakespeare as a dramatist and to trace the changes in his attitude towards life. The plays to be read are *Romeo and Juliet*, *As You Like It*, *Ruchard II*, *Henry IV*, *Part I*, *Julius Caesar*, *Hamlet*, *Lear*, *Othello*, and *Macbeth.*

Monday, Wednesday and Friday, 6:00–9:00 p.m.

THE SHORT STORY ENG.—S.125

William H. Carter, Jr., Ph.D., *Associate Professor of English*

This course involves the intensive reading of a wide range of stories which exemplify a variety of fictional methods, affording the student some knowledge of the history of this literary type. The primary aim is to help the student develop and appreciation of the broadly human values implicit in the short story.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

FINE ARTS

OPERA F.A.—S.17

Wesley M. Fuller, M.M., *Associate Professor of Music*

With the help of translated librettos, recordings and selected readings, a study is made of a group of operas representing all periods of music history, with emphasis on the many solutions to the combination of music and drama.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

ART STUDIO WORKSHOP F.—F.A.—S.100

John T. Murphey, B.S., *Assistant Professor of Fine Arts*

An art involvement course designed for those with little or no experience in art production in which the student will experiment in class in a variety of mediums and approaches to increase his understanding as well as his ability in the visual arts. Projects will include representational drawing, still life painting, statements in meaning, abstract painting, action-painting, collage, clay sculpture, constructions, "found-objects," environments, and happenings. Grade rests on effort and understanding. There will be an additional fee for materials of about $25.00 payable at the first meeting. Enrollment limited to 10 students.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

INTRODUCTION TO MUSIC F.—F.A.—S.102

Relly I. Raffman, A.M., *Professor of Music*

What to listen for in Music. Designed for the student with no previous musical training or experience, it will deal with the basic theoretical elements and materials of music.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

MICHELANGELO AND THE HIGH RENAISSANCE F.A.—S.155

Samuel P. Cowardin, III, Ph.*D.*, *Associate Professor of Fine Arts*

The course will concentrate on Michelangelo's work in architecture, sculpture, and painting, taking into account personal, religious, intellectual, and political influences in his life. His style will be viewed in relation to the Renaissance background as well as the Mannerist trends of the sixteenth century. Readings, class discussions with slides, and a paper.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

GEOLOGY

PHYSICAL GEOLOGY F.—GEOL.—S.12a

Wesley E. Bryers, Ph.D., *Assistant Professor of Geology*

Introduction to geology, origin of the earth, its development through time; the study of the common minerals and rocks, their structure, origin and occurrence; geological activities of the air, streams, and the sea; nature of glaciers, volcanoes and earthquakes, and the age of the earth. Laboratory work consists of mineral and rock identification.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

HISTORICAL GEOLOGY GEOL.—S.12b

Wesley E. Bryers, Ph.D., *Assistant Professor of Geology*

This semester deals with the origin of continents and ocean basins, their development through time; the glacial periods and the antiquity of man; development of surface features of North America; and evolution of life through geologic time. Laboratory work consists of map interpretation and fossil identification. Lectures and laboratory. Laboratory: Thursday, 1:00–4:00 p.m.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

GOVERNMENT

INTRODUCTION TO POLITICAL SCIENCE GOV.—S.100

Knud Rasmussen, Ph.D., *Associate Professor of Government*

A survey of the components of political science with discussion of the development of the discipline. Some emphasis will be placed on systematic study of political systems and past and present tools used for such analysis.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

HISTORY

THE GROWTH OF WESTERN CIVILIZATION HIST.—S.10a

James F. Powers, Ph.D., *Assistant Professor in History, Holy Cross College*

A survey of political, economic and intellectual trends from the Renaissance to the end of the Napoleonic Era, designed to promote an understanding of the origin and development of the modern world. Topics to be discussed include the Renaissance, the Reformation, the Commercial Revolution, the Growth of the Modern State, the Age of Enlightenment, and the Era of the French Revolution.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

MARXIAN SOCIALISM HIST.—S.140

Timothy McCarthy, M.A., *Lecturer*

This course will focus on the Marxian critique of capitalist society and the projection of the socialist alternative. Primary attention will be given to the writings of Marx and Engels. Prerequisite: a basic course in Modern European History.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

MATHEMATICS

FUNDAMENTALS OF MATHEMATICS MATH.—S.11a, b

Robert J. Perry, M.A., *Lecturer*

A logical development of elementary mathematics: including an axiomatic treatment of the real number system, arithmetic and elementary algebra, functions and relations, polynomials and topics from the theory of equations, introductory analytic geometry, and the exponential, logarithmic, and trigonometric functions. As a background, the arithmetic and algebra over arbitrary sets will first be considered.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Monday, Wednesday and Friday, 6:00–8:00 p.m.

PSYCHOLOGY

GENERAL PSYCHOLOGY PSY.—S.11a, b

Henry D. Bates, Ph.D., *Assistant Professor of Psychology*

An introduction to the principles of human behavior.

Intersession: Monday, Wednesday and Friday, 6:00–9:00 p.m.
Summer Session: Monday, Wednesday and Friday, 6:00–8:00 p.m.

PSYCHOLOGY OF PERSONALITY PSY.—S.172

James D. Laird, Ph.D., *Assistant Professor of Psychology*

A course dealing with the concepts and issues involved in the psychology of personality. Attention will be given to various approaches to the study of personality such as trait theories, typologies, field theory, and psychoanalysis. Methods of appraising personality will also be considered. Prerequisite: General Psychology.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

PSYCHOLOGY OF LANGUAGE PSY.—S.125

Bernard Kaplan, Ph.D., *Professor of Psychology*

A psychological analysis of the use of symbols in language, dreams, and myth. No prerequisite required.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

INTRODUCTION TO CHILD PSYCHOLOGY PSY.—S.150

Ina C. Uzgiris, Ph.D., *Assistant Professor of Psychology*

The development of the child's personality and interpersonal behavior, in relation to family, peer group and culture. Prerequisite: General Psychology.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

EFFECTS OF SOCIAL DISADVANTAGEMENT ON BEHAVIOR PSY.—S.165

Walter H. Crockett, Ph.D., *Professor of Psychology*

A seminar examining the cognitive and motivational processes, especially in children, that are associated with low social status in American society. Prerequisite: General Psychology.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

RUSSIAN LITERATURE

TURGENEV RUSS.—S.120

Larisa Quincy-Sorokin, M.A., *Assistant Professor of Russian*

In translation. As in depth study of this most European of Russian novelists.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

DOSTOEVSKY RUSS.—S.125

Boris Sorokin, M.A., *Visiting Lecturer, Mt. Holyoke College*

In translation. His life, his works and his philosophy.

Monday, Wednesday and Friday, 6:00–9:00 p.m.

SOCIOLOGY

RELIGION AND SOCIETY SOC.—S.15

Charles W. Estus, Ph.D., *Assistant Professor of Sociology*

An examination of the social functions of traditional religions (Protestantism, Catholicism, and Judaism) and quasi-religions (Black Nationalism, Communism, Americanism) in American Society. Special emphasis will be placed on developing a sociological model of religious behavior independent from such sects and movements.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

Summer Session

BIOLOGY

INTRODUCTORY BOTANY F.—BIO.—S.11

Ernst Abdendroth, M.A., *Visiting Lecturer, Holyoke Community College*

The structure and life processes of seed plants and the interrelationships between plants and man. Heredity, evolution, and a brief survey of the plant kingdom will be included. Some field trips are planned. *Limited to 24 students.*

Laboratory fee: $10.00. Monday through Friday, 9:15–10:25 a.m.
Laboratory: To be arranged.

ELEMENTS OF BIOCHEMISTRY BIO.—S.270

John J. Brink, Ph.D., *Assistant Professor of Biochemistry*

The principles and mechanisms of biochemical reactions in an understanding of the metabolism of foodstuffs and the role of enzymes, vitamins and hormones with an acquaintance of the instrumentation in biochemical research will be presented. Prerequisite: Organic Chemistry. No laboratory.

Monday through Friday, 8:00–9:10 a.m.

BUSINESS ADMINISTRATION

BUSINESS STATISTICS B.A.—S.16b

Albert J. Sargent, M.B.A., *Lecturer*

See description under Intersession. Prerequisite: B.A.—S.16a.

Tuesday and Thursday, 6:00–10:00 p.m.

INVESTMENT PRINCIPLES B.A.—S.19

Sidney Hoffman, M.B.A., *Lecturer*

A general course in investments describing the types of investment securities and the methods used in making appraisals of particular securities. There will be emphasis on the sources of investment information and on the operation of the securities markets designed to acquaint the businessman or prospective investor with the mechanics of this important segment of American business. Prerequisite: Principles of Economics and Corporation Finance. *Final examination: To be arranged.*

Summer Session, July 5–August 19, Tuesday and Thursday, 7:00–10:00 p.m.

BUSINESS LAW B.A.—S.20b

Reginald J. Smith, M.Ed., *Visiting Lecturer, Holy Cross College*

See description under Intersession. Prerequisite: B.A.—S.20a.

Monday, Wednesday and Friday, 7:00–9:40 p.m.

PRINCIPLES OF ACCOUNTING B.A.—S.117b

Frederick R. Strobel, M.B.A., *Lecturer*

See description under Intersession. Prerequisite: B.A.—S.117a.

Monday, Wednesday and Friday, 7:00–9:40 p.m.

ADVERTISING B.A.—S.152

Ray A. Yetvin, M.B.A., *Lecturer*

Advertising as a tool of marketing. Topics studied include the economic functions of advertising, advertising research, media selection, advertising organizations and testing. *Final examination: To be arranged.*

Summer Session: July 5–August 19, Tuesday and Thursday, 7:00–10:00 p.m.

ECONOMICS

PRINCIPLES OF ECONOMICS EC.—S.11b

Donald T. Savage, M.A., *Assistant Professor of Economics*

See description under Intersession. Prerequisite: EC.—S.11a.

Tuesday and Thursday, 6:00–9:00 p.m.

INTERNATIONAL TRADE: THEORY AND POLICY EC.—S.115

Roger C. Van Tassel, Ph.D., *Professor of Economics*

A study of monetary and non-monetary theories of international economics, and problems in the United States foreign economic policy. Prerequisite: One year of Principles of Economics.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

ECONOMIC DEVELOPMENT AND UNDERDEVELOPMENT EC.—S.150

Frederick W. Bell, Ph.D., *Assistant Professor (affiliate) of Economics*

A historical survey of growth patterns in the economically advanced countries, followed by a discussion of major characteristics in modern underdeveloped countries and various policies relating to how development can be started in these countries. No prerequisite required.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

EDUCATION

EDUCATIONAL PSYCHOLOGY ED.—S.202

Ralph E. Packard, Ph.D., *Visiting Lecturer, University of Utah*

A study of the teaching-learning process, with emphasis upon principles of learning and personality development of children and adolescents. A background course in the applications of psychology to education. Intended for both in-service and prospective school personnel. Students will be able to concentrate on either adolescent growth and development (for secondary level teaching) or child growth and development (for elementary level teaching).

Monday through Friday, 10:30–11:40 a.m.

THE AMERICAN SCHOOL ED.—S.205

Richard Gordon, Ph.D., *Assistant Professor of Education*

A comprehensive and systematic study of the American School System, with emphasis upon recent innovative developments in structure, organization, administration and curriculum. Intended for in-service teachers and as a first course for prospective teachers.

Monday through Friday, 9:15–10:25 a.m.

METHODS AND MATERIALS IN SECONDARY EDUCATION ED.—S.208

Richard Gordon, Ph.D., *Assistant Professor of Education*

Methods and techniques used by the teacher in junior and senior high school. Emphasis will also be upon survey of materials available.

Monday through Friday, 11:45 a.m.–12:55 p.m.

INTRODUCTION TO GUIDANCE AND COUNSELING IN THE SCHOOLS ED—S.230

Ralph E. Packard, Ph.D., *Visiting Lecturer, University of Utah*

Principles and practices in the development of a guidance program. Intended for teachers and others who desire a systematic introduction to guidance and counseling in the schools.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

CURRICULUM DEVELOPMENT AND SUPERVISION IN THE SECONDARY SCHOOL ED.—S.265

Spencer Potter, M.A., *Assistant Director of Counseling and Placement*

The course will include study and development of daily and unit planning of curriculum by individual teachers and a consideration of the coordination of efforts of individuals and teams of teachers in the development of knowledge and attitudes in the total school program.

Tuesday and Thursday, 6:00–9:00 p.m.

ENGLISH

ENGLISH COMPOSITION AND LITERATURE F.—ENG.—S.11b

Arthur H. Martin, A.B., *Instructor in English*

See description under Intersession. Prerequisite: ENG.—S.11a.

Tuesday and Thursday, 6:00–9:00 p.m.

PUBLIC SPEAKING F.—ENG.—S.12

James F. Beard, Ph.D., *Professor of English*

A course in the fundamentals of public speaking, emphasizing both the composition and delivery of the most common types of speeches, such as introductory, expository, and impromptu speeches. Special attention will be given to problems of human relations, voice tests, vocabulary development, and the acquisition of self-confidence, poise, and effective communication techniques. Practice speeches, conference, and voice recordings to enable the student to recognize and correct his speech deficiencies. (Candidates for the B.S. in B.A. degree should use course No. B.A.—S.17; candidates for the A.B. degree should use the course No. ENG.—S.12.) *Limited to 15 students.*

Blakeslee House. Monday, Wednesday and Friday, 8:00–10:00 p.m.

EXPOSITORY WRITING ENG.—S.19

Charles S. Blinderman, Ph.D., *Associate Professor of English*

Through the study and application of rhetorical methods, this course is designed to assist students to improve their expository writing. Diction, sentence structure, paragraph integrity, theme organization, logic, semantics, persuasion, the relationship of idea to expression and of expression to audience are among the matters analyzed.

Monday through Friday, 8:00–9:10 a.m.

THE ORIGINS AND DEVELOPMENT OF THE ENGLISH LANGUAGE ENG.—S.100

John McLaughlin, M.A., *Visiting Lecturer, Lowell State College*

A study of the phonological, syntactic and etymological backgrounds of present day English.

Tuesday and Thursday, 6:00–9:00 p.m.

CONTEMPORARY AMERICAN FICTION ENG.—S.106

James F. Beard, Ph.D., *Professor of English*

A critical introduction to the best American fiction since about 1900, with emphasis on its aesthetic values, sociological insights, and philosophic implications. Authors read and discussed will include Henry James, Theodore Dreiser, F. Scott Fitzgerald, Sherwood Anderson, Ernest Hemingway, William Faulkner, Truman Capote, J. D. Salinger, Norman Mailer, James Purdy, Saul Bellow, and others.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

LITERATURE OF WESTERN CIVILIZATION ENG.—S.150

Charles S. Blinderman, Ph.D., *Associate Professor of English*

A study of literature basic to the cultural development of western civilization; selections will range in subject from mythology to political science, in type from the epic poem to the essay, and in time from Greek antiquity to the Renaissance.

Monday through Friday, 10:30–11:40 a.m.

SPECIAL STUDIES IN YEATS AND JOYCE ENG.—S.200

Stanley Sultan, Ph.D., *Associate Professor of English*

This course is designed for advanced undergraduates and graduate students, and participation is by consent of the instructor. After a series of meetings of the whole class, each student will develop and delineate a project, dealing with either figure or both, to culminate in a paper of five thousand to ten thousand words (twenty to forty pages). Each student will confer with the instructor or submit a progress report weekly, until at the end of the fifth week a series of seminars will be held at which students will present orally the results of their studies. The papers will be due at the end of the examination period, and the instructor will discuss each paper with its author in a subsequent conference.

Calendar for Special Studies in Yeats and Joyce

July 5 and 6, 10:00 a.m.–12:00 noon, 2:00–4:00 p.m.: background, bibliography, research information (compulsory)

July 12, 19, 26, August 2: conferences or progress reports

August 9 and 10, 10:00 a.m.–12:00 noon, 2:00–4:00 p.m.: final seminars (appropriate sessions compulsory)

August 19, 4:00 p.m.: papers due

FINE ARTS

CONTEMPORARY PAINTING AND SCULPTURE—1945 TO THE PRESENT F.A.—S.175

Leon Shulman, M.F.A., *Visiting Lecturer, School of the Worcester Art Museum*

The course will concentrate on the major trends in painting and sculpture since 1945. The environment and the artists involved in Abstract Expressionism, Pop Art, Optical Art, Happenings and Kinetic Sculpture will be studied, as well as the future of the visual arts. Slides, films, group discussions and demonstrations.

Monday through Friday, 10:30–11:40 a.m.

FRENCH

ELEMENTARY FRENCH* F.—FR.—S.11

Marian M. Walter, Ph.D., *Assistant Professor of Romance Languages*

For beginners. Structured development of all four essential skills (hearing, speaking, reading, writing) through controlled laboratory exercises and classroom practice in conversational French accompanied by explication.

Laboratory fee: $10.00. Monday through Friday, 6:30–9:00 p.m.

INTERMEDIATE FRENCH* F.—FR.—S.12

Marian M. Walter, Ph.D., *Assistant Professor of Romance Languages*

Review of four essential skills (hearing, speaking, reading, writing) and continued development of control of grammatical and stylistic elements through laboratory exercises and conversation, drill and explication in the classroom.

Laboratory fee: $10.00. Monday through Friday, 6:30–9:00 p.m.

HISTORY

PROBLEMS OF THE MODERN WORLD HIST.—S.10b

James F. Powers, Ph.D., *Assistant Professor in History, Holy Cross College*

The social, economic and political problems of a civilization evolving from steam power to atomic power. The effects of industrialization on society will be examined in relation to such perennial questions as Man and the State; Individualism versus Collectivism; and International Relations.

Tuesday and Thursday, 6:00–9:00 p.m.

AMERICAN HISTORY TO 1850 HIST.—S.133

Lawrence J. Kazura, M.A., *Visiting Lecturer, Fairfield University*

A survey of the history of the United States from its first foundations. Emphasis will be placed on the American colonies and the Puritan heritage, the Revolution, the Federalist era, Jeffersonianism, the phenomenon of Jacksonian democracy, and the ante-bellum period.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

*Double course.

EUROPE IN TRANSITION: 1300–1600 HIST.—S.209

Bruce Blaney, M.A., *Lecturer*

A history of Europe in the age of the Renaissance and Reformation. Special attention will be given to the transformation of European thought after the late Middle Ages.

Monday through Friday, 9:15–10:25 a.m.

HISTORY OF THE BRITISH EMPIRE-COMMONWEALTH SINCE 1783 HIST.—S.200

William A. Green, Jr., Ph.D., *Visiting Lecturer, Holy Cross College*

This course examines British reactions to the loss of the American colonies and successive modifications in the old colonial system, i.e., the emancipation of slaves, the elimination of protective tariffs, and the abandonment of the navigation system. It analyzes conflicting attitudes in England toward the colonial establishment during the mid-century period, noting the growth of anti-imperialist sentiment while acknowledging the steady enlargement of imperial responsibility. Greatest emphasis will be placed on the post-1870 expansion of the British Empire, with the chief focus upon Africa. The transition from Empire to Commonwealth and the subsequent decline of imperial power will be treated in narrower scope.

Monday through Friday, 8:00–9:10 a.m.

TOTALITARIANISM IN GERMANY, 1933–1945 HIST.—S.208

A seminar on the origins, ideology and operation of the Nazi regime.

Tuesday and Thursday, 6:00–9:00 p.m.

THE SOVIET SYSTEM HIST.—S.282

John O. Iatrides, Ph.D., *Visiting Lecturer, Southern Connecticut State College*

The course examines the political, economic and social development of Russia since the Bolshevik Revolution. After a brief historical survey of twentieth century Russia the ideology, institutions and foreign policies of the Soviet system will be examined.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

LANGUAGES

GERMAN

INTRODUCTORY GERMAN* F.—GER.—S.11

James S. Edwards, M.A., *Associate Professor of German*

A comprehensive introduction to the written as well as the spoken language. The course aims at acquisition of all four skills: reading, writing, speaking and understanding. *Students taking this course should not attempt a second because this course will demand the full time of the student.*

Monday through Friday, 9:15–10:25 a.m. and 11:30–12:45 p.m.

*Double course.

INTERMEDIATE GERMAN* F.—GER.—S.12

Erika E. Theobald, Ph.D., *Assistant Professor of German*

Review of German grammar. Study of expository and narrative prose. Aural and oral training in the language. *Students taking this course should not attempt a second because this course will demand the full time of the student.*

Monday through Friday, 9:15–10:25 a.m. and 11:30–12:45 p.m.

SPANISH

INTRODUCTORY SPANISH* F.—SP.—S.11

Raymond E. Barbera, Ph.D., *Associate Professor of Romance Languages*

For beginners. The elements of grammar and pronunciation; carefully graded reading; exercises in speaking and writing.
Laboratory fee: $20.00.

Monday through Friday, 8:00–9:10 a.m. and 2:00–3:10 p.m.

MATHEMATICS

FUNDAMENTALS OF MATHEMATICS MATH.—S.11b

Robert J. Perry, M.A., *Lecturer*

See description under Intersession. Prerequisite: Math.—S.11a.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

CALCULUS* MATH.—S.12

Warren Chase, M.S., *Lecturer*

Introduction to differential and integral calculus; essential for further study in mathematics as well as for the study of applications in the natural and social sciences.

Monday through Friday, 9:15–10:25 a.m. and 2:00–3:10 p.m.

PHILOSOPHY

PROBLEMS OF PHILOSOPHY PHIL.—S.11

John R. Scarborough, A.B., *Lecturer*

Nature and method of philosophy. Application of philosophical method to contemporary personal and social problems. Detailed analysis of some typical problems in various fields of philosophy. *Limited to 25 students.*

Monday, Wednesday and Friday, 6:00–8:00 p.m.

*Double course.

PSYCHOLOGY

GENERAL PSYCHOLOGY PSY.—S.11a

Henry D. Bates, Ph.D., *Assistant Professor of Psychology*

An introduction to the principles of human behavior.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

GENERAL PSYCHOLOGY PSY.—S.11b

Jesse D. Geller, Ph.D., *Lecturer*

See description under Intersession. Prerequisite: PSY.—S.11a.

Monday, Wednesday and Friday, 6:00–8:00 p.m.

SOCIAL PSYCHOLOGY PSY.—S.170

James D. Laird, Ph.D., *Assistant Professor of Psychology*

The role of social factors in the behavior of individuals and of groups. Among the topics to be discussed are attitudes, rumor, prejudice, leadership and public opinion polls. Prerequisite: General Psychology.

Monday through Friday, 9:15–10:25 a.m.

PSYCHOLOGY OF LEARNING PSY.—S.165

David A. Stevens, Ph.D., *Assistant Professor of Psychology*

Theoretical viewpoints and experiments in the field of learning.

Monday through Friday, 10:30–11:40 a.m.

HISTORY OF PSYCHOLOGY PSY.—S.206

Bernard Kaplan, Ph.D., *Professor of Psychology*

Contemporary problems and theories in psychology are viewed in the light of philosophical and scientific antecedents. Attention will be given to the historical development of present-day Behavioristic, Gestalt, and Psychoanalytic viewpoints in psychology.

Tuesday and Thursday, 6:00–9:00 p.m.

PHYSIOLOGICAL BASES OF PSYCHOPATHOLOGY PSY.—S.205

Donald G. Stein, Ph.D., *Assistant Professor of Psychology*

A general survey of the physiological, neurological and biochemical mechanisms thought to underly "mental illness." Attempts will be made to study mental retardation, infantile autism, epilepsy, memory disorders, psychoses, aphasias and disturbances of orientation in perception. Historical and contemporary approaches to the problem will be discussed and analyzed. Prerequisite: Introductory Psychology. Some background in Physiological or Abnormal Psychology is desirable but not required.

Monday through Friday, 11:45–12:55 p.m.

RUSSIAN LITERATURE

SOVIET RUSSIAN LITERATURE RUSS.—S.130

Larisa Quincy-Sorokin, M.A., *Assistant Professor of Russian*

In translation. Poems, plays and novels of selected Soviet authors considered as works of literary art and as illustrations of the social, economic, and political conditions of the period.

Monday through Friday, 10:30–11:40 a.m.

THE RUSSIAN NOVEL RUSS.—S.135

Boris Sorokin, M.A., *Visiting Lecturer, Mt. Holyoke College*

Development of Russian realism. Study of some typical works of Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy, and Chekhov with discussion of important trends in social and aesthetic ideas which they represent. In translation.

Monday, Wednesday and Friday, 8:00–10:00 p.m.

SOCIOLOGY

PRINCIPLES OF SOCIOLOGY SOC.—S.11a

Frederick W. Killian, LL.B., *Associate Professor of Sociology*

An introduction to the basic concepts and theories of sociology and their application to an analysis of American society.

Monday through Friday, 10:30–11:40 a.m.

CRIME, DELINQUENCY, and SOCIETY SOC.—S.13

Frederick W. Killian, LL.B., *Associate Professor of Sociology*

The behavioral phenomena of crime and delinquency in society; theories thereof; the nature and function of criminal law; juvenile delinquency and juvenile courts; criminal justice and the courts; treatment of deviant behavior of today; types of offenses and probable causation; sex offenses and insanity; outline of probation, parole and the prison world.

Monday through Friday, 11:45–12:55 p.m.

SMALL GROUP BEHAVIOR SOC.—S.100

Charles W. Estus, Ph.D., *Assistant Professor of Sociology*

An examination of the varieties and extent of small group organization within society with special emphasis upon their function as links between personality and larger units of social organization. The students' creation of and participation in small groups as participant observers will provide the basic data for the course.

Tuesday and Thursday, 6:00–9:00 p.m.

COURSE SCHEDULE

INTERSESSION—DAYS—JUNE 12–JULY 1—All classes meet twice a day 9:00 a.m. and 2:00 p.m.

Bio. —S.17	Field Ecology	Hutchinson
Eng. —S.125	The Short Story	Carter
F.A. —S.17	Opera	Fuller
F.A. —S.102	Introduction to Music	Raffman
F.A. —S.155	Michelangelo and the High Renaissance	Cowardin
Geol. —S.12b	Historical Geology	Bryers
Gov. —S.100	Introduction to Political Science	Rasmussen
Psy. —S.125	Psychology of Language	Kaplan
Psy. —S.165	Effects of Social Disadvantagement on Behavior	Crockett
Russ. —S.120	Turgenev	Quincy-Sorokin
Soc. —S.15	Religion and Society	Estus

INTERSESSION—NIGHTS—JUNE 12–JULY 7—All classes meet Monday, Wednesday and Friday, 6:00–9:00 p.m. with the exception of the business courses.

*B.A. —S.16a	Business Statistics	Sargent
*B.A. —S.18	Corporation Finance	Walsh
*B.A. —S.20a	Business Law	Smith
*B.A. —S.117a	Principles of Accounting	Strobel
*B.A. —S.124	Principles of Marketing	Balko
*B.A. —S.320	Foundations of Business	Walsh
*B.A. —S.340	Marketing Research	Balko
EC. —S.11a	Principles of Economics	Aronson
Eng. —S.11a	English Composition and Literature	Martin
Eng. —S.113	Shakespeare	Anderson
F.A. —S.100	Art Studio Workshop	Murphey
Geol. —S.12a	Physical Geology	Bryers
Hist. —S.10a	The Growth of Western Civilization	Powers
Hist. —S.140	Marxian Socialism	McCarthy
Math.—S.11a	Fundamentals of Mathematics	Perry
Psy. —S.11a	General Psychology	Bates
Psy. —S.172	Psychology of Personality	Laird
Psy. —S.150	Introduction to Child Psychology	Uzgiris
Russ. —S.125	Dostoevsky	Sorokin

SUMMER SESSION—(Day Classes)—JULY 3–AUGUST 19

8:00–9:10 a.m. Monday through Friday

Bio. —S.270	Elements of Biochemistry	Brink
Eng. —S.19	Expository Writing	Blinderman
Hist. —S.200	History of the British Empire-Commonwealth Since 1873	Green
**SP. —S.11	Introductory Spanish	Barbera

9:15–10:25 a.m. Monday through Friday

Bio. —S.11	Introductory Botany	Abendroth
Ed. —S.205	The American School	Gordon
**Ger. —S.11	Introductory German	Edwards
**Ger. —S.12	Intermediate German	Theobald
Hist. —S.209	Europe in Transition: 1300–1600	Blaney
**Math.—S.12	Calculus	Chase
Psy. —S.170	Social Psychology	Laird

10:30–11:40 a.m. Monday through Friday

Ed. —S.202	Educational Psychology	Packard
Eng. —S.150	Literature of Western Civilization	Blinderman
F.A. —S.175	Contemporary Painting and Sculpture	Shulman
Psy. —S.165	Psychology of Learning	Stevens
Russ. —S.130	Soviet Russian Literature	Quincy-Sorokin
Soc. —S.11a	Principles of Sociology	Killian

CLARK UNIVERSITY

SEVENTY-SIXTH

ANNUAL COMMENCEMENT

CAMPUS GREEN

SUNDAY, JUNE 5, 1966

WORCESTER, MASSACHUSETTS

ORDER OF EXERCISES

Prelude and Processionals	Canzon Septimi toni No. 1 *Gabrieli* Grand March from "Aida" *Verdi* Coronation March from "Le Prophete" *Meyerbeer*
Invocation	Rabbi David Davis *Temple Emanuel*
Welcome by the President	Dr. Howard B. Jefferson
Commencement Address	Francis Keppel *Chairman* *General Learning Corporation*
Conferring of Degrees	Dr. Howard B. Jefferson
Alma Mater Fiat Lux (Stanzas I and III)	
Benediction	Rabbi David Davis
Recessional	Pomp and Circumstance *Elgar*

EVENING COLLEGE CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

Henry Austin Brewer
Richard William Brosnihan
Donald Raymond Burning
Alfred Joseph Corda
Anthony Lee Dudek
John Michael Finn
John F. Gannon
Joseph Leonce Goguen
Peter Wayne Gravelle
Robert E. Griffin
Edmond Anthony Hachey
Joseph Howard Hansen
Stephen Francis Loughlin
John Edward Mackintire
Loran Murray Malone, Jr.
John Alfred Parker
Raymond Joseph Paulin
Richard Joseph Petit
*David Joseph Picard, Jr.
Philip Raymond Pratt
John Henry Vander Baan
Vincent Alvin Yurgilas

EVENING COLLEGE CANDIDATE FOR THE DEGREE OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION WITH HONORS

Summa Cum Laude

Allan Gordon Spang

EVENING COLLEGE CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN GENERAL STUDIES

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Mary Francess Ahern
Raymond Pierre Bazinet
*Stephen Beaton, III
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Robert Philip Collen
Robert Walter Conway
Donald Normand Cormier
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*David Sherman Parker
John Felix Swantek
Charles Louis Winkiewicz

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Summa Cum Laude

Sylvia F. Bernstein

**As of June 6, 1965*

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Harrison Jay Hargest
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*Christopher Erskine Pickwick
*Robert Stanley Schiffman
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Alan Leonard Wolfson
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CANDIDATE FOR THE DEGREE OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION WITH HONORS

Cum Laude

Richard Renton Hopkins, and *with Highest Honors in Economics*

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Martin David Barr
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Irene Marjatta Oja
MacDonald Ifeanyi Okafor
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Carl Fred Theiler
Laurence Murdock Todd
Elizabeth Ann Tompkins
Breck Joseph Trautwein
Peter Seth Tuckel
David Cushing Tucker
Charles Henry Tuttle
Wilma D. Vander Baan

As of June 6, 1965

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Elizabeth Wakefield
Krista Martha Walch
Steven Fred Warkany
Bruce Jerome Wein
Jonathan Eric Weissman
Rodger Winslow White
Robert Breck Williams, Jr.
*Charles Frederick Wilson
Rodney John Wilson
Theodore Wilson
Janet Beverly Wyatt

CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS WITH HONORS

Departmental Honors

Christopher Paul Bice, *Chemistry*
Lorna Leah Carlson, *Geography*
Henry Carl Chaiklin, *Sociology*
Katharine G. Chaiklin, *Sociology*
Jeffrey Madison Clark, *Geography*
Richard Jay Cohen, *Psychology*
Frederick Lawrence Covan, *Psychology*
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Gail Leslie Fleming, *Mathematics*
William Gobush, Jr., *Chemistry*
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Mary Frances Lesniewski, *Sociology*
Halvar Young Löken, *Chemistry*
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Carla Schuman, *Psychology*
Steven Alfred Seelig, *Economics*
Lori Eve Selinsky, *Psychology*
Sherwood Thayer Small, *Economics*
Diane Helen Mary Wholley, *International Relations*

Cum Laude

Nancy Louise Abodeely, and *with High Honors in Geography*
John Howard Baker
Robert Martin Cabral
Elaine Louise Carlson, and *with Honors in Sociology*
Arthur Jason Engel, and *with High Honors in History*
Kathleen Alicia Godfrey
Roberta Jo Gottlieb
Nancy Ruth Helman
Robert Jay Hurst, and *with Honors in Government*
F. Tenney Lantz
Bernard Howard Lavenda, and *with Honors in Chemistry*
Barbara Gail Nowak
Karen Mona Olshan, and *with Honors in Psychology*
James Edward Ross
Phyllis Ann Roth, and *with Honors in English*
John Alexander Shearer, and *with Honors in Chemistry*
Venice May Smith
Patricia Mary Starzyk, and *with Honors in Chemistry*
Joyce Ann Vancini

**As of June 6, 1965*

Magna Cum Laude

Steven Jordan Brown, and *with High Honors in Classics*
Eleni Archimidis Tsantekidou, and *with Highest Honors in Economics*

Summa Cum Laude

Carol Renée Simon, and *with Highest Honors in Psychology*

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John Raymond Courtney
Ralph Philip Dorey
Clayton Fairfield Jones
Maurice Francis Kiely
John Francis Kokernak
Richard Francis Parslow

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Michael Silver
Irene Wilhelmina Walch
Jane Whitney

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Richard Alan Mahler
Jen-rong Wang Yang

Chemistry

Keisuke Morimoto
Harvey Naaman Smith

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Anis Mohammad Bargouti
Yung-Mo Kim
Byoung Young Lee
James Houghton Webster

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Claira Pirozzi Campbell
Norman Howard Goldman
Franklin Donald Hodges
Merlin Paul Lawson
Henry Richard McCutcheon
Robert Armand Paul
Chatchai Pongprayoon
Peter Paul Sakalowsky, Jr.
Vincent Joseph Talarico, Jr.

History, Government and International Relations

Howard Francis Angione
Thomas Johnson Baker, Jr.
James Gregory Clapp
Alice Virginia Emerson
Lawrence John Kazura - no thesis req'd.
Nathan Yu-Jen Lai
Donn Norman Nibblett
Fredric Vaughn Stone
John Clark Wirkkala

Mathematics

Robert Allen Frenette
Richard Alfred Houde
Bernard Howard
Teh-hwah Hwang
Yeh Jane
James Joseph Kaput
William Spezeski

Physics

David Raymond Bedding
David Dean Lindberg

Psychology

Linda Jane Brandt
Robert Barry Brooks
Maida Barton Follini
Seymour Jerome Friedland
Charles Thomas Kenny
Bert Meltzer
Julie Ainslie Rogers
Gerald Alan Winer

Sociology

Joseph Patrick Morrissey

CANDIDATE FOR THE DEGREE OF DOCTOR OF EDUCATION

Marcia Anne Savage

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CONFERRING OF HONORARY DEGREES

Leonard Baskin Presented by Samuel Pendleton Cowardin	*Doctor of Humane Letters*
Clifton Waller Barrett Presented by James Franklin Beard	*Doctor of Letters*
Hans Heinrich Boesch Presented by Saul Bernard Cohen	*Doctor of Science*
William Hayward Pickering Presented by Roy Stuart Anderson	*Doctor of Science*
Charles Anderson Dana Presented by Robert Mooers Hyde	*Doctor of Humane Letters*
Francis Keppel Presented by Robert Francis Campbell	*Doctor of Laws*

FIAT LUX

Words by
E. L. Clarke, '09

Music by
R. F. Fletcher, '10

Oh Clark! Thy sons have gathered
To thee from east and west,
To pledge with deep devotion
The college they love best.
They love thy halls and campus,
Each comrade of their heart
The memories, aims, traditions
That make thee what thou art.

Hail Clark! We who revere thee
Salute thee with a cheer!
While we shall live we'll praise thee.
Oh college without peer!
Only with life shall perish
Thy name and memory bright,
Thy sons shall ever cherish
The scarlet and the white!

Godspeed our Alma Mater,
And may she ever be
The leader of the leaders,
The freest of the free!
Her sons shall still press onward,
The foremost in the fight,
Till everywhere her watchword
Shall ring, "Let there be light!"

1966

EVENING COLLEGE

Bachelor of Science in Bus. Admin.	22
Bachelor of Science in General Studies	23
Master of Business Administration	6
TOTAL	51

DAY COLLEGE

Bachelor of Science in Bus. Admin.	12
Bachelor of Arts	230
TOTAL	242

GRADUATE SCHOOL

Master of Arts in Education	31
Master of Arts	46
Doctor of Education	1
Doctor of Philosophy	14
TOTAL	92

TOTAL OF TOTALS	385

CLARK UNIVERSITY

SEVENTY-SEVENTH

ANNUAL COMMENCEMENT

CAMPUS GREEN

SUNDAY, JUNE 4, 1967

WORCESTER, MASSACHUSETTS

ORDER OF EXERCISES

Processionals	Coronation March from "Le Prophete" *Meyerbeer* Grand March from "Aida" *Verdi* Pomp and Circumstance *Elgar*
Invocation	The Reverend Lester P. White A.B. '23, M.A. '24
Welcome by the President	Dr. Howard B. Jefferson
Commencement Address	Everett N. Case *President* *Alfred P. Sloan Foundation*
Conferring of Degrees	Dr. Howard B. Jefferson
Alma Mater Fiat Lux (Stanzas I and III)	
Benediction	The Reverend Lester P. White
Recessional	Trumpet Voluntary *Purcell*

EVENING COLLEGE CANDIDATE FOR THE DEGREE OF BACHELOR OF FINE ARTS

Susan Eileen Black

EVENING COLLEGE CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

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*Ida Barbara Simenas
John Joseph Veo, Jr.
Edward Zigmont Zdrok

EVENING COLLEGE CANDIDATE FOR THE DEGREE OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION WITH HONORS

Magna Cum Laude

James Melikian

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Lillian B. Chapin
Wilfred Francis DesRosiers
Paul Robert Dowgiert
Denis Michael Flanaghan
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Shirley Lafortune Kauppinen
Andrew Kevan O'Keefe
Barbara J. Reichers
Alden G. Smith
Jeannette Eaton (Ross) Smith

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Cum Laude

Margaret Julia Corrigan

**As of June 5, 1966*

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Jill Cadwallader
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Samuel Philip Chiancola
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Walter Robertson Densmore
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Jonathan Goodman
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Andrea Joyce Grant
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*Frederick Lawrence Grinnell
Korin Gale Gustafson
Patti Ann Harburger
Robert Aram Harootyan
Allan Francis Harper
Emily Sue Hermanson
Eleanor Jean Hitov
*Anne Elizabeth Hoffman

*_As of June 5, 1966_

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Thomas Grinell Holder
Carl Gustav Holmblad
Susan Harriet Honig
Edith Davidson Howe
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Marshall Jaffe
William Richard Joslin
Nora Eileen Kane
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John Stuart Kauer
John Charles Kenny, Jr.
George William Kessler
Carle Edward Kibbitt
Janet Elaine Kirkpatrick
Elaine Ruth Knowlton
Jonathan Gay Korin
Paul Robert Krasner
Robert Eric Krute
William Thomas Laprade
*Youngja Lee
Susan Helen Levine
Leo Alfred Lortie
Duncan Peck Loungway
Kathleen Marie Lucier
Lincoln Clyde MacDonald
Russell Edward MacDonald
Susan Brent Maine
Paul Francis Marandett
Frances Louise Martin
Elaine Marie Mattson
Richard Alfred Mattson
Rosalie Mary Mazzarella
Martha Louise McCann
*Richard Carleton Miller
Richard Antone Morrison
Sallie Nunnemacher
*Douglas Edward Osgood
Geoffrey Curtis Ovington
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Elizabeth Hillhouse Pendleton
Carol May Perpente
Diana Wendy Pierce
John Sebastian Praninskas
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Anthony Louis Ranauro
Frederick Cherrill Rawson
Lincoln Maxwell Rhodes
Robert Riesenberg
Fredric Leonard Rosen
Lloyd Steven Rothouse
Donald Edward Saccone
Arthur Maitland Sachse
William James Sacovitch
Elliott Stephan Sahagian
Joseph Frederick Schick
Helen Ann Schwartz
Erica Barth Seidler
Frank Lozeah Shaw
Louise Janyce Simon
Curtis Brown Simpson
Wilson A. Dandato Sithole
Mark Robinson Skinner
*David Albert Smith
Donald Alan Smith
*Pamela Smith
Saulutė Anna Staska
Edward Blair Steeves
Susan Deraney Straight
*Robert Winslow Sturke
Paula Sullivan
Barbara Ann Szerlag
Constance Seymour Thompson
James Magruder Thompson
Patricia Ann Thompson
Evans William Tsoules
Elizabeth Ann Vaida
Patricia Lee Van Ostrand
Elaine Hope Wagner
Margaret J. Walsh
Jill Winifred Watts
Johanna Weber
Alan Roy Weiskopf
*Alice Teresa Wolf
*Donald Hamilton Wood
*Francis Woodbridge, Jr.
Everett Frank Wyner

*_As of June 5, 1966_

CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS WITH HONORS

Departmental Honors

John Dovi Afesi, *International Relations—High Honors*
Raymond Joseph Bergeron, *Chemistry*
John Wesley Borg, *Economics*
Michael Jonathon Brill, *Economics*
Daniel Landau Candee, *Government—High Honors*
Mary-Paula Cirrito, *English*
Susan Elizabeth Collins, *Biology*
Elliot Victor Feldbau, *Chemistry*
Robert Evarts Hanold, *English*
Deana Marie Heinrich, *History*
Dana William Hiscock, *Economics—High Honors*
Beverly Mary Kulig, *Psychology*
Richard Lawrence Marcuson, *Mathematics—High Honors*
Louis Joseph Medvene, *Psychology*
Gerald Lester Popovsky, *Economics*
David Vaughn Smith, *History*
Bradford James Ward, *Economics*
Richard Watson Wurster, *Economics*
Joel Martin Yesley, *Economics—High Honors*

Cum Laude

William Appledorf
Steven Alan Bluth 319
Francis William Brissette
Alan Jay Chaset, *and with Honors in Government*
Thomas James Corbett
Davida Ann Eisenberg
Mark Revere Halperin
Ellen Sue Heller, *and with Honors in Psychology*
Honore Marie Horan
Peter Jarman Jones, *and with Honors in Government*
Philip Joel Kinsler, *and with Honors in Psychology*
Larry S. Kirstein, *and with Honors in Chemistry*
Nancy Jane Lehr
Robert Joseph Mezey, *and with Honors in Chemistry*
Paul Alphee Moore, *and with Honors in International Relations*
Charles Joseph Movalli, *and with High Honors in English*
Robert Anthony Rebelo, *and with High Honors in Geography*
Marvin Rosen, *and with Honors in Chemistry*
Phyllis Reva Seibel, *and with Honors in Romance Languages*
Thomas Henry Seidel
Paul Alan Slater
Prudence Ann Ward

Magna Cum Laude

Stephen Lessing Baehr
Susan Sloan Holtz
Richard James LaForge, *and with High Honors in Chemistry*
Sue Ellen Novick, *and with High Honors in Psychology*
Richard Lloyd Rubin
Susan Gail Shapiro, *and with Honors in Sociology*
David Withington Trimble

Summa Cum Laude

Gary Richard Ljungquist, *and with High Honors in Romance Languages*
Gale Marie Matson
Jill Elizabeth Rierdan, *and with Highest Honors in Psychology*
Margaret Wilson Taft, *and with Highest Honors in Mathematics*

CANDIDATES FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

Ray Eugene Hannah
Hugh Harold Lawson
William Warburton Rawstron
Joaquim Samuel Silva Ribeiro
Donald Francis Stone

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Erika Marie Bergstrom
Mitchell Gabriel Chakour
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Charles Herbert Ferris, Jr.
Ann F. Gut
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Everett William Moir, Jr.
Berenice MacAlister Paciello
Sylvia Audrie Queen
David Howard Quist
Deborah Margaret Spencer
Margaret Reid Wall
Pearl G. Waterhouse
Janet M. Wesson
Joyce Hutchins Wiggin

CANDIDATES FOR THE DEGREE OF MASTER OF ARTS

Biology

Ziedonis Skobe

Chemistry

Ellen Ching-Hua Young

Economics

Edgar Raul Dick Noya
Andrew Sydney Harvey
Joseph Francis Mahoney, Jr.
Conrad Maurice Ouellette
Albert Joseph Sargent
Sang-Kuk Sim
Frederick Richard Strobel
Kuo-cheng Tseng

Geography

Abdul Wahab AlDabbagh
Rohan S. Andrew
Robert Edward Black
Thomas Edward Gledhill
Bruce Leo LaRose
Robert William Thompson

History, Government, and International Relations

Robert Edward Farrar
Kathleen Marie Fitzgerald
John Vincent Flynn
Michael Edward Groth
Ronald Dean Heacock
Michele Marie Hilden
Louis John Kern
Vanna Lee-Aporn
Robert James Smith

Mathematics

Myron Ginsberg
Maxwell Duncan McCornock
Marshall Chase Severance

Physics

David Jerome Quarton
Peter Demerton Yedinak

Psychology

Andrew Hubert Gonyea
Phillip Michael Kleespies
Allan Nahum Press
Sister Clare David Walsh

Sociology

Robert Donald Conway

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Doris Diana Salzer
William Elliot Topkin

CANDIDATES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Biology

Richard George Beschle
Marcus John Farrell
Michael Eugene Somers
Rodrigue Marcel Sutherland
Helen Guillette Vassallo

Chemistry

Robert Woodrow Wilson
Daniel Maximillian Zavisza

Economics

Glen Gleb Alexandrin
Marvin Robert Brams
Annette Marie Pinckney
James Warren Wightman

Geography

Nicholas Bariss
Gwendolyn Kay Bell
John Ellis Dornbach
Salvatore John Natoli

History, Government, and International Relations

Donald Quayle Cannon
Nabil Moustafa Kaylani
Tong-Chin Rhee

Psychology

Peter Aldin
Gerald David Guthrie
Willis F. Overton, Jr.
Ogretta Humphries Vaughn

CONFERRING OF HONORARY DEGREES

Robert Alfred Nelson Presented by Howard White Nicholson	*Doctor of Science*
John Kirtland Wright Presented by George Athan Billias	*Doctor of Letters*
Very Reverend Raymond Joseph Swords Presented by Robert Francis Campbell	*Doctor of Laws*
Dwight Erwin Lee Presented by Morris Harold Cohen	*Doctor of Humane Letters*
Henry Donaldson Jordan Presented by Sherman Strong Hayden	*Doctor of Humane Letters*
James Ackley Maxwell Presented by Roger Carleton Van Tassel	*Doctor of Humane Letters*
Everett Needham Case Presented by Robert Mooers Hyde	*Doctor of Laws*

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Words by
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Music by
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The scarlet and the white!

Godspeed our Alma Mater,
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The freest of the free!
Her sons shall still press onward,
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Till everywhere her watchword
Shall ring, "Let there be light!"

1967

EVENING COLLEGE

Bachelor of Fine Arts	1
Bachelor of Science in Business Admin.	24
Bachelor of Science in General Studies	13
TOTAL	38

DAY COLLEGE

Bachelor of Science in Business Admin.	13
Bachelor of Arts	210
TOTAL	223

GRADUATE SCHOOL

Master of Business Administration	5
Master of Arts in Education	21
Master of Arts	35
Doctor of Education	2
Doctor of Philosophy	22
TOTAL	85

TOTAL OF TOTALS	346

AUG 1970
WESBY